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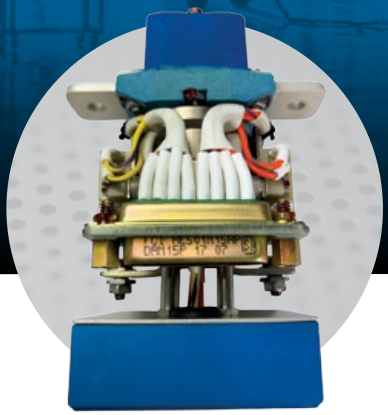

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FROM THE DESK OF THE EDITOR

MANY CHALLENGES AND OPPORTUNITIES FOR AIR MEDICAL SERVICES

The global helicopter air ambulance industry stands at a critical juncture, balancing life-saving innovation with complex challenges. As demand for rapid medical transport grows, particularly in remote and rural areas, the sector continues to evolve as it is driven by technological advancements and increasing healthcare needs. However, it faces hurdles that require urgent attention.

Helicopter air ambulances are indispensable, providing swift access to emergency care where ground transport falls short. Advanced avionics, night vision systems, and medical equipment have enhanced operational efficiency and patient outcomes. The global market, valued at approximately $7 billion in 2024, is projected to grow steadily as it is fueled by aging populations and rising trauma cases. North America leads with nearly 1,000 medical helicopters in operation, while Europe and Asia-Pacific are expanding rapidly due to healthcare infrastructure investments. On page 48, we highlight ANWB, an air ambulance service that has grown dramatically in the Netherlands.

Yet, challenges persist. High operational costs (often exceeding $10,000 per flight) strain providers and patients, particularly in regions with limited insurance coverage. Regulatory disparities across countries complicate standardization, impacting safety and interoperability. Pilot and crew shortages, exacerbated by rigorous training requirements, threaten service scalability. Additionally, safety concerns linger. Despite a decline in accident rates, fatal crashes remain a stark reminder of the risks in adverse weather and complex terrains. On page 58, we engage several industry experts to focus on not only the opportunities facing air ambulance operators, but the challenges as well.

Sustainability is another pressing issue. As you will see in our feature on page 72 titled “What’s New and Next in AMS,” the industry is exploring hybrid and electric rotorcraft to reduce carbon footprints, but high costs and technological limitations hinder adoption. Meanwhile, competition from drone-based medical delivery systems looms as a potential disruptor.

As we move forward, collaboration among governments, operators, and innovators is vital to address these challenges. By prioritizing safety, affordability and sustainability, the helicopter air ambulance industry can continue its critical mission of saving lives.

Lyn Burks,
Editor-In-Chief

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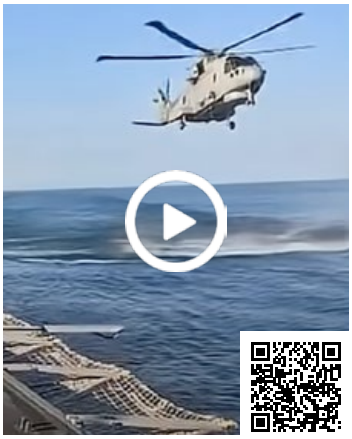
DEPARTMENTS

THIS IS WHAT CAPABILITY LOOKS LIKE

THE FIGHTING CLAN, FLYING DAY INTO NIGHT ON THEIR FIRST UNDERWAY AVIATION SERIALS SINCE REGENERATION. MASSIVE THANKS TO @FOST, @1700NAS, AND @RNASCULDROSE FOR MAKING THIS MILESTONE HAPPEN. THE TEAMWORK WAS OUTSTANDING!

VIDEO: @HMSSUTHERLAND



COVER

WITH NO FEWER THAN 12,000 CALLS PER YEAR, YELLOW ANWB TRAUMA HELICOPTERS ARE A FREQUENT AND FAMILIAR SIGHT IN THE NETHERLANDS' SKIES. DURING THE COVID-19 PANDEMIC, ANWB H145 HELICOPTERS WERE DEPLOYED TO TRANSFER ICU PATIENTS BOTH WITHIN THE NETHERLANDS AND ABROAD.

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ONLINE INTERESTS

JOBS, NEWS, FORUMS, ARTICLES, VIDEOS, PHOTOS, CLASSIFIEDS, LINKS & MORE

THIS ISSUE'S SURVEY:

WHICH ATTRIBUTE OF YOUR JOB IS MOST IMPORTANT TO YOU?

- ☐ SALARY / BENEFITS
- ☐ WORKING CONDITIONS
- ☐ LOCATION
- ☐ AIRCRAFT FLOWN
- ☐ MAINTENANCE
- ☐ TIME OFF
- ☐ RETIREMENT
- ☐ GOOD MANAGEMENT

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LAST ISSUE'S SURVEY

IN YOUR CAPACITY WORKING IN OR AROUND HELICOPTERS, WHICH STATEMENT APPLIES:

- **45%** - I HAVE BACK-NECK PAIN ATTRIBUTED MOSTLY TO HELICOPTERS
- **22%** - I HAVE BACK-NECK PAIN ATTRIBUTED SOMEWHAT TO HELICOPTERS
- **8%** - I HAVE BACK-NECK PAIN RELATED TO OTHER ACTIVITIES
- **25%** - HAVE NO BACK-NECK PAIN AT ALL

ANOTHER AWESOME PHOTO

📸 THE H125 COMBINES POWER, SAFETY, AND ELEGANCE – A MACHINE CARVED FOR EFFICIENCY, EVEN IN EXTREME CONDITIONS!

SOCIAL MEDIA

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U.S. HELICOPTERS INC.

LAW ENFORCEMENT DEPUTY PILOT (SARASOTA, FL)
SARASOTA COUNTY SHERIFF'S OFFICE

AS350 LINE PILOT ($15K SIGN-ON, $40K RETENTION - CASPER, WY)
MED-TRANS

PILOT (PATTERSON, LA)
KINETICA PARTNERS LLC

GROUND SUPPORT TECHNICIAN (CHEHALIS, WA)
WEYERHAEUSER

FLIGHT NURSE (FREDERICKSBURG, VA)
PHI

FIRE/UTILLITY AS350 (LOVELAND, CO)
TRANS AERO LLC

PILOT—CBP AIR INTERDICTION AGENT (SEVERAL LOCATIONS, FL)
U.S. CUSTOMS AND BORDER PROTECTION

TOUR PILOT (TAMPA, FL)
FLYVENTURE LLC

B407 LINE PILOT ($15K SIGN-ON, $40K RETENTION - LANCASTER, SC)
MED-TRANS

B407 LINE PILOT ($15K SIGN-ON, $40K RETENTION - OCALA, FL)
MED-TRANS

R44 PILOT (VAN NUYS, CA)
LITE FLIGHT HELICOPTERS

S-76D PILOT (LITTLE ROCK, AR)
ARKANSAS CHILDREN'S HOSPITAL

AW109SP AND BELL 505 PILOT (YENAGOA & ABUJA)
AZIKEL GROUP

UTILITY/POLE SET PILOT (GARLAND, UT)
RUGGED MOUNTAIN AVIATION

VFR PILOT (MOUNT PLEASANT, TX)
PHI HEALTH

SENIOR A&P MECHANIC (MONROEVILLE, AL)
PHI HEALTH

CFII R22/R44 (SMOKETOWN, PA)
SMOKETOWN HELLICOPTERS

DOM (GETTYSBURG, PA)
HVA INC

DOM (MONROVIA, LIBERIA)
SAMARITANS PURSE

TOUR PILOT (PHILADELPHIA, PA)
MY FLIGHT TOURS

PART 135 UTILITY HELICOPTER CHIEF PILOT (COEUR D'ALENE, ID)
LOHMAN HELICOPTER LLC

R44/R66 HELICOPTER TOUR PILOT (KEYSTONE, SD)
BLACK HILLS HELICOPTERS INC.

S-61 PILOT IN COMMAND (THERMAL, CA)
COULSON AVIATION USA

DOM- A&P MECHANIC (ALBUQUERQUE, NM)
VERTICAL LIMIT AVIATION LLC

B407 LINE PILOT
(15% GEO MOD, $15K SIGN-ON, $40K RETENTION - MCCOMB, MS)
MED-TRANS

EC135 LINE PILOT
($5K IFR, $15K SIGN-ON, $40K RETENTION - WINCHESTER, TN)
MED-TRANS

AIRFRAME/POWERPLANT MECHANIC (FORT WORTH, TX)
HELICOPTER INSTITUTE

KAUAI AIR TOUR PILOT (LIHUE, HI)
ALOHA HELICOPTER TOURS

AS350 MAINTENANCE TECH (YERINGTON, NV)
RURAL MEDEVAC ALLIANCE

RECEPTIONIST (FORT WORTH, TX)
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PILOT (HOMESTEAD, FL)
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MY 2 CENTS

BY RANDY ROWLES

TRAINING COSTS, INDUSTRY DEBT, AND A FAILING FAA

Becoming a helicopter pilot has always required dedication, discipline, and no small amount of financial sacrifice. However in 2025, the costs associated with helicopter training reached a critical tipping point. With total training expenses easily surpassing $100,000, a strained job market, rising insurance rates, exorbitant FAA testing fees and outdated regulatory constraints, we're now at a breaking point.

And at the heart of it all lies a broken system of regulation, one that continues to waste our industry's time and money under the illusion of collaboration, while reinforcing outdated policies that are driving away the very workforce our industry desperately needs.

For students pursuing a full rotorcraft training path, including Private, Instrument, Commercial, and Certified Flight Instructor certificates, the all-in cost typically ranges from $80,000 to $120,000. This cost doesn't include living expenses or lost wages during training. It's a major investment, and one that's becoming increasingly difficult to recover.

A significant and often overlooked driver of this cost is insurance. In recent years, training operations have been hit with soaring insurance premiums, with liability and hull coverage becoming the most expensive line item on many school budgets, often exceeding maintenance and fuel combined. In some cases, insurance costs alone have pushed training providers to reduce operations or close altogether.

Add to that the cost of checkrides, now routinely exceeding $1,000 per exam, and a typical student may face upwards of $6,000 in FAA testing fees before they're job ready. For an industry that desperately needs new pilots, the financial model is upside down.

Upon graduation, most new pilots begin their careers as flight instructors, earning $35,000 to $45,000 annually, often while repaying six-figure student loans. While helicopter pilot shortages persist in sectors like air ambulance, utility, and law enforcement, these jobs require 1,500+ hours of turbine time, which new instructors don't have. As a result, there's a long, costly bridge between training completion and employability in the broader market.

Students are rightly asking: How am I supposed to repay $100,000 in loans with a $40,000 salary? Here's the honest answer: Many won't, not without significant financial strain.

There is a way to reduce costs, increase safety, and streamline training: high-fidelity simulation. Flight training devices (FTDs) are now sophisticated enough to replicate nearly every flight condition imaginable, including emergencies that would be unsafe or impractical to train in real aircraft. The cost savings and safety benefits are undeniable.

Yet, despite the clear advantages, the FAA continues to resist widespread credit for sim-based training in the rotorcraft world. The approval process for simulator use is not only bureaucratic and inconsistent, but also functionally prohibitive. While the fixed-wing industry enjoys broad access to simulation credit, rotorcraft operators are stuck navigating a regulatory labyrinth just to get a fraction of the same benefit.

At the center of the FAA's outdated approach is the belief that minimum flight hours are an indicator of readiness. They are not.

The requirement for 40 hours to obtain a private pilot certificate is a decades-old standard created in an era when aircraft were analog, resources were limited, and simulation was non-existent. That number was never based on proficiency. It was an estimate, and a poor one at that.

In today's world, if a student can demonstrate all required maneuvers, procedures, and aeronautical knowledge in 35 hours, why shouldn't they be certified? What matters is not time; what matters is competence. Yet, the FAA clings to hourly minimums while dismissing or severely limiting proficiency-based progression.

To make it worse, many of the people designing these rules have never worked as a civil flight instructor. They're removed from the realities of modern training, and it shows.

Perhaps most frustrating is the FAA's approach to stakeholder engagement. On the surface, the agency will invite industry to participate in meetings and working groups to solicit feedback, suggestions, and proposed solutions. Then, the process breaks down.

After these industry sessions, the FAA often convenes internal-only meetings where the actual decisions are made without industry representation. These closed-door discussions routinely walk back industry recommendations, compromise on critical points, and craft regulatory language that bears little resemblance to the solutions offered by those who actually train pilots.

The result? A "solution" that doesn't solve the problem and instead is often burdened by political compromise, internal turf

wars, and a fundamental misunderstanding of how our industry operates. It's a complete waste of time, and to make matters worse, it pushes the industry further behind at a moment when we need to be innovating and growing.

The aviation industry — helicopter training providers in particular — must be empowered to develop its own training programs, standards, and proficiency metrics. The FAA's role should be to evaluate whether those standards result in safe, competent pilots and mechanics, not to dictate how many hours or which syllabus structure must be followed.

This isn't about removing oversight; it's about redefining oversight to focus on outcomes, not process.

Imagine a better world where the FAA simply asks: Can the applicant demonstrate the knowledge and skill required to hold this certificate?

If the answer is yes, the certificate should be issued. That's how it works in nearly every other performance-based industry.

Right now, we're held hostage by arbitrary hour minimums, excessive bureaucracy, and regulations crafted by individuals disconnected from the realities of flight instruction. We're forced to pay exorbitant prices, wait through years of underpaid work, and navigate an FAA process that is hostile to innovation.

The cost of helicopter flight training is unsustainable. The job market, while improving, offers no guarantees of financial viability for new pilots. Simulation, which should be a cornerstone of affordable and effective training, is trapped behind outdated FAA policy. In addition, efforts to collaborate with regulators are often a charade, with the real decisions being made behind closed doors.

Our industry should oversee training our workforce. The FAA should set the safety bar and hold operators accountable to meeting it, not micromanage how we get there. Until this changes, we will continue to lose capable individuals, delay progress, and watch costs rise.

That's just my 2 cents, but it's costing all of us a lot more.

Randy Rowles has been an FAA pilot examiner for 20 years for all helicopter certificates and ratings. He holds an FAA Gold Seal Flight Instructor Certificate, NAFI Master Flight Instructor designation, and was the 2013 recipient of the HAI Flight Instructor of the Year Award. Rowles is currently the owner of the Helicopter Institute. He can be reached at randyrowlesdpe@gmail.com

MEET A ROTOR PRO

FELIPE REITZ LOBO

RPMN: What is your current position?

I am the CEO of Aerotoscana, a Chilean helicopter company. I serve as the chief pilot, flying a Robinson R66 primarily for agricultural operations including frost control and fruit drying, with a special focus on Chile's cherry growers. I carry out this work alongside my wife, a team of engineers, and strong accounting support, allowing us to perform each operation with the highest level of dedication and professionalism.

RPMN: Tell me about your first experience with helicopters.

My first experiences with helicopters date back to 2015 flying with Claudio Fischer, a renowned Chilean pilot of both airplanes and helicopters who inspired me to pursue this path. Claudio, originally from Chile's Patagonia, amazed me with the experience of flying over such a beautiful, remote, and little-explored place at the end of the world. Following his advice, I began my aviation training with airplanes before transitioning to helicopters.

RPMN: How did you get your start in the helicopter industry?

Aerotoscana was created with the goal of transporting people from Santiago, the capital of Chile, to Viña del Mar where we live, with the idea of decentralizing Santiago and increasing the flow of executives to the Valparaíso Region. We also brought guests to our boutique hotel Villas Toscanas in the Limache Valley, offering them a unique stay in the region. We began with a focus on passenger transportation — a venture that was not easy to launch and is no longer our main operation, although we still offer it today. Over time, we diversified into heli-fishing, heli-camping, and agricultural operations, initially as a subcontractor for larger companies. This led us to launch our own heli-ski operation, which we ran successfully for three consecutive seasons without incidents, gaining valuable operational experience. This stage strengthened our image and allowed us to enter the agricultural business directly, where we now focus most of our efforts.

RPMN: When and how did you choose the helicopter industry? Or did it choose you?

I chose the helicopter industry because I was deeply passionate about flying and wanted to find a way to stay in the air in a self-sustaining manner, allowing me to keep improving my skills. Through agricultural work, we managed to cover flight costs while gaining valuable experience, which allowed me to train abroad. I believe the answer goes both ways — I chose the industry to be able to fly, and the industry chose me by giving me the opportunity to grow and share what I love most.

RPMN: Where did you get your start flying professionally?

As I mentioned earlier, helicopter flight schools in Chile were very limited, and at the time I began my training, it was nearly impossible unless you owned a helicopter. Thanks to my father's support, I connected with Félix De Vicente, who owned a Robinson R44 Raven II and was starting a flight school. I became the first student at Rotortec in Santiago, training with pilot Miguel Marín, a retired officer from the Chilean armed forces who gave me a strong foundation and opened the door for pilots in Chile to train without purchasing their own aircraft.

Professionally, I began flying when we acquired our Robinson R66 Turbine Marine, the aircraft that became the foundation of all my work in the industry and the driving force that inspired us to develop the projects and operations that define our path today. I had the privilege of ferrying the R66 from Torrance, California, on a 22-day, 67-flight-hour journey alongside a distinguished and veteran pilot, Commander Alfonso Wenzel. It was both a major challenge and an invaluable experience for which I am deeply grateful, marking a before-and-after moment in my professional life.

RPMN: If you were not in the helicopter industry, what else would you see yourself doing?

If I weren't in the helicopter industry, I think I would be pursuing a sport more professionally — something related to golf, cycling, or motorcycles. I would look for something that could give me and others the same feelings I get when flying: freedom, focus, and adrenaline.

RPMN: What do you enjoy doing on your days off?

On my days off, I enjoy dedicating time to the helicopter — performing basic maintenance, cleaning, checking the weather, planning routes, and constantly looking for ways to improve my operations. I focus on learning more about the Robinson R66 by talking to mechanics, reading aeronautical literature and other pilots' experiences, and attending courses. When we are out of season, my wife and I fly to Patagonia to carry out expeditions and explorations; it's a region we are passionate about discovering from the air and on the ground. I also spend a lot of time with my father, my greatest supporter, sharing

hobbies like cycling and golf. In addition, I create and share content on our social media channels, providing practical and safe information to help other pilots fly more efficiently and confidently.

RPMN: What is your greatest career accomplishment to date?

My greatest accomplishment in the helicopter industry has been producing a high-quality documentary video to showcase the operations we carry out in Chile. For my wife, myself, and our company, it was deeply rewarding to present it in the United States, share it with other pilots, and demonstrate what we do in this far corner of the world with the R66 and what it can achieve. We are proud that companies from around the globe have seen and recognized our work.

RPMN: Have you ever had an "oh, crap" moment in helicopters? Can you summarize what happened?

My most challenging moment happened during a heli-ski operation with two groups of clients. Near the end of the day, I heard a strange noise and the starter generator warning light came on, indicating the battery was no longer charging. I had to halt the operation, leave one group on the mountain, fly the other down, and then return for the first group — executing all emergency procedures without ever shutting down the turbine. Thanks to quick decision-making and coordination, everyone was evacuated safely, although the mechanical failure was severe. The helicopter could not be restarted until it was repaired.

RPMN: If you could give only one piece of advice to new pilots, mechanics, or support personnel, what would it be?

What has helped me the most is maintaining constant safety training, continuing to practice, and asking many questions to understand every detail. I pay particular attention to inspecting the helicopter after maintenance — something that might occasionally annoy mechanics, but I consider it essential for a pilot. Recently, I earned my instructor's license, which has motivated me even more to keep studying and investing in specialized books such as "Keep Your RPM in the Green" by Richard Mornington-Sanford, which I highly recommend. My advice is simple: stay trained, stay current, and always fly calmly, never in a rush.

RPMN: In your view, what is the greatest challenge for the helicopter industry at this moment in time?

I believe one of the main challenges today is staying relevant in the face of emerging technologies such as drones and artificial intelligence, which in some cases could replace certain types of helicopter work. As members of this industry, we have a responsibility to inform and educate others about the true value of helicopter operations. They are essential, save time, and in many cases have no direct competition. By communicating this importance, we can not only maintain our place but also improve it by integrating technology and new ideas that strengthen and evolve the market.

Do you know someone who would be a good subject for ***Meet a Rotor Pro***? Email your suggestion to the editor-in-chief: lyn.burks@rotorpro.com

EXECUTIVE WATCH

CEO AND FOUNDER OF OPTIMA AERO

TOBY GAULD

BY RICK WEATHERFORD

Optima Aero and its founding CEO have been having a "moment" — for approximately 15 years. Toby Gauld founded his business in 2010 from zero in Quebec, Canada. His company has been adding numbers in front of that 0 by providing refurbished and certified parts, components, and engines to helicopter operators, maintenance centers, and OEMs worldwide. By "adding numbers," we mean growing Optima Aero at a 38% annual rate (with 60 employees now) and putting a 42 in front of six zeroes to add up to $42 million (USD) in sales this year. Optima Aero expanded its Beloeil, Quebec, headquarters for engine maintenance and component repair to 30,000 square feet, *plus* it has equally sized centers in Tarnos, France, for part-out activities, and Grand Prairie, Texas, for MROs. Expected this August is an Asian landing in Singapore to further spread Optima's reach. The globally ambitious Gauld also is looking for acquisition opportunities around the world.

Family Values

This exponential expansion is understandable when one realizes that fast growth is a Gauld family tradition. Gauld is the oldest of five biological brothers, but his parents, who worked in Canadian public service, also became foster parents in a generous, self-sacrificing act that added children to their home big-time. “There were up to like 10 kids at a time in our home. My parents were always compassionate and helping out the next of kin and the like, so we were brought up with those values of helping others. Because of my parents, I want to make my family, my company, my community, and even my planet better,” says Gauld.

Gauld left that full house to find himself in college. “I was searching a little for my future and mission in life. I started and fizzled out in a few subjects, but then discovered industrial engineering and got my master’s degree from Polytechnique Montréal.”

After graduating, Gauld stayed in “The Paris of North America” to build Camaros for a couple of years at General Motor’s Montreal plant before it closed shop. Afterwards it was on to Peugeot automotive manufacturing in the original France. Then he and his wife, Valery Lapointe, decided it was time to move back to Canada after their third child was born. Gauld became the maintenance manager for Pratt & Whitney Canada in Saint-Hubert, Quebec. After working in aftermarket strategy there, he founded Optima Aero and started building his company from the basement up.

Building often requires patching holes. “We’re filling holes in the rotorcraft space by providing serviceable parts from helicopters. Our vision is to be the leader in extending the economic life of helicopters by reusing the most possible assets we have,” Gauld explains. “We’re cleaning up the yard, basically, by harvesting legacy parts and reducing the carbon footprint related to manufacturing new parts.”

600 Times

Reducing carbon footprints has become a cliché among corporations, but for Gauld, it’s a motivating force that drives his business. He explains, “In cooperation with my alma mater, we’ve created a calculator that estimates carbon reduction related to reusing parts in aviation and in general.” He says the calculator estimates — and this makes ears perk up — that reusing parts reduces carbon emission by *600 times* the weight of the part. “For example, manufacturing a new one-pound part from raw materials emits 600 pounds of carbon into the environment throughout the mining and manufacturing process; when we reuse that part, we avoid those carbon emissions,” Gauld explains.

While this calculated conclusion gets attentive ears, Gauld realizes reducing carbon emissions is not music to every ear. “Now obviously, we work in Texas and realize there is some pushback against such carbon savings by thinking they are not that valuable or important, but what I’m saying is why not make the best use of our resources and assets; that’s low-hanging fruit. It’s better to have a clean backyard than a dirty backyard.”

Fantastic Four

For the still skeptical, Gauld makes a value proposition on behalf of his company. “There’s four values that we provide to the industry: **cost reduction** by buying less expensive serviceable parts; **parts availability** in this age of supply-chain challenges; **increased cash flow** for our customers by buying assets from them; and **carbon reduction** by making the best, most efficient use of existing assets,” he says. To reinforce this best-use philosophy, Optima Aero’s Canadian operation even makes best use of its roof by growing a garden on it in the northern sunshine; employees enjoy their summers by taking home a weekly harvest of fresh veggies. (Do they grow okra and tomatoes? Just asking for a friend:))

Passion

Listening to Gauld, one gets the sense that the man really cares about these four values and that they mean more to him than a sales pitch. Throughout our interview, he says several times that Optima Aero exists to "clean up the yard" or to reduce helicopter-industry carbon emissions through recycling and restoring aircraft and parts that are becoming scarce.

He has passion for what he does, and he says that's his company's key to success. "My leadership style can be summed up in one word: passion. As an entrepreneur, I'm passionate about innovation and about meeting and talking with people, but I also want to have fun and engage. We move and adapt in our space fast, so I want people who can do that and be leaders themselves. All that requires passion."

Good Advice

Yet, Gauld is learning to temper this passion. "I thank the wise men and women on my advisory board who told me several times, 'Don't let perfection be the enemy of good.' I'm learning to accept that sometimes good is good enough, especially when you're starting up. As an entrepreneur who pushes himself very hard, it's unrealistic to expect perfection from others. Developing a tolerance for imperfection was good advice I needed." (Advisors include sages such as Larry Alexandre, president of United Rotorcraft, who is Gauld's longtime friend.)

Gauld also heeded more good advice from his board. "I was also advised to invest early in quality processes that could handle increasing sales. It was an up-front cost, but I'm now so appreciative we did it because it brought us huge credibility by being ready to deliver on time and brought us ahead of the curve not only through innovation, but also through standardization. I like to say we're a small company who thinks like a big company."

That saying also fits the helicopter industry, because Gauld sees it as a small aviation sector that does big things. "The rotorcraft industry is a small world where once you come in, you sort of cannot leave it. I've seldom seen people leave because it's an industry that is so interconnected that once you're in, you're connected and have skills and knowledge that make you well suited to stay." Make no mistake, Gauld has no intention of leaving rotorcraft. "Our company supports the EMS market probably more than any other, and our support can make a difference as to whether an EMS helicopter flies or stays on the ground. So, it's very rewarding to play a part in an industry that's saving someone's life. We are there when it counts. A helicopter absolutely can make a difference between life and death for someone."

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SAFETY SITREP
Safety-Related Information and Resources from the Vertical Aviation Safety Team

TRUST IS THE HEART OF SAFETY DECISION-MAKING

BUILDING A JUST CULTURE IN ROTORCRAFT OPERATIONS

By John Franklin, lead specialist communications and safety promotion, European Union Aviation Safety Agency

Imagine a twisted world where reporting a mistake doesn't lead to a lesson learned, but to a lesson avoided because no one felt safe enough to speak up. That's not just a missed opportunity; it's a hidden risk waiting to become a headline.

In rotorcraft operations, where the margin for error can be razor-thin and operational conditions can be unpredictable, trust is more than a feel-good word; it's the foundation of safety. Trust is built through culture.

From Reporting to Reflecting

In our last article, we talked about the importance of safety reporting — not just ticking the compliance box, but learning from what goes right and what goes wrong. But here's the follow-up question: What kind of environment actually makes people speak up honestly?

The answer lies in two powerful words: Just Culture.

A just culture is not a "no-blame" culture. It doesn't let everything slide. Instead, it strikes a balance. It recognizes the difference between human error, at-risk behavior, and reckless conduct. In a just culture, the goal isn't punishment; it's learning.

The Trust Equation

Trust in aviation doesn't just come from procedures and checklists. It comes from how people are treated when things go wrong. Trust happens when:

- Staff know they won't be punished for honest mistakes.
- Ground crews know they can admit confusion or flag a near-miss without being labeled incompetent.
- Engineers feel their insights won't be ignored when they highlight recurring issues.
- Leaders are seen to act fairly and transparently when things go wrong.

If people don't trust the system — or the people running it — they'll stop feeding it. If reporting stops, you lose learning about the real risks in your operation.

Three Questions Every Organization Should Ask

To check if you're on the right track, ask:

1. *Do we respond to safety reports with curiosity or with judgment?*
   If your first instinct is "Who did this?" instead of "How did this happen?" and "How can we improve?" then you're steering away from trust.
2. *Are our teams confident they'll be treated fairly?*
   A well-meaning pilot who busts a minimum in poor weather isn't the same as someone cutting corners for convenience. Treating them the same drives reporting underground.
3. *Do we learn from what's going right?*
   Too often, we analyze only failures. But what about the maintenance crew that caught an issue just in time, or the decision to delay a departure that avoided a hazard? Share these too. It reinforces positive action.

Make Culture Visible

Just Culture isn't just a slogan on a poster. It's how things are really done when no one's watching. Here's how to make it real:

- Respond openly: When someone reports an incident, let them know what you're doing with the information. Silence kills motivation.
- Be consistent: If your policy says you support open reporting, but a mechanic gets sidelined for raising a concern, your policy means nothing.
- Train your leaders: Supervisors and line managers set the tone. Invest in their understanding of just culture — how to handle reports, how to distinguish error from recklessness, and how to keep trust alive.

Safety Decisions Are Human Decisions

In the end, safety isn't created in manuals; it's created in conversations. That means we need an environment where speaking up is safe, listening is active, and trust runs in both directions.

When rotorcraft teams — from the flight line to the back office — feel supported, they make better choices. When leaders listen without blame, they uncover insights they'd never find in a spreadsheet. And when a just culture takes root, safety becomes something people do *with* the system, not *for* it.

In rotorcraft operations, trust doesn't just improve safety. It lifts us all.

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UNCREWED UPDATE

from AUVSI

SHARED SKIES

WHY THE FUTURE OF ROTORCRAFT INCLUDES DRONES AND AAM

From the tarmac to the tower, it's clear: the rotorcraft world is entering a new phase of evolution, defined by shared airspace, integrated systems, and rapidly advancing uncrewed capabilities. This summer, federal action is accelerating that transformation. A new White House Executive Order and DoD directives are prioritizing the rapid adoption of small drones and setting the stage for broader airspace integration.

While those headlines focus on national security and defense, the ripple effects extend directly to public safety aviation units, utility operators, and rotorcraft professionals across the board.

What does it mean for you?

First, it signals that uncrewed systems are becoming foundational, not experimental. In public safety, drones are now a go-to tool for scene recon, overwatch, and deconfliction with crewed aircraft. In inspection and logistics, they're expanding operational reach while reducing risk and cost. And in emergency response, they're enabling safer access to hazardous environments, all while working alongside helicopters rather than replacing them.

Second, it highlights the growing urgency around airspace modernization and BVLOS (beyond visual line of sight) rules. The FAA is actively developing frameworks to enable routine drone operations BVLOS, which is essential for scaling use in dense urban areas, long-distance infrastructure patrols, and eventual eVTOL deployments. AUVSI is deeply engaged in these conversations, advocating for performance-based, scalable regulations that support real-world operations, whether piloted or autonomous.

Then there's Advanced Air Mobility (AAM). The ecosystem surrounding AAM, from vertiport planning to operational concepts, is maturing quickly. The transition won't happen overnight, but now is the time for rotorcraft professionals to understand how AAM will complement traditional aviation. These platforms will likely begin with cargo, short-haul logistics and public safety augmentation, which are precisely the mission sets where helicopters already play a vital role.

AUVSI's role is to ensure that this evolving landscape remains safe, secure, and inclusive of operators across the spectrum. We're working with government and industry to align training standards, streamline rulemaking, and ensure that public safety agencies, operators, and OEMs have a clear path forward as these technologies mature.

As autonomy and uncrewed systems become more deeply embedded in vertical operations, one thing is certain: the rotorcraft community will continue to be on the front lines of innovation. Whether you're flying crewed, remote, or (soon) electric and autonomous, the mission remains the same. AUVSI is here to help ensure you have the policy, tools, and connections to keep moving forward.

Be Part of the Conversation

AUVSI connects rotorcraft professionals with the insights, advocacy, and cross-sector collaboration shaping the future of uncrewed and autonomous aviation. Join today at www.auvsi.org.

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TIPS FOR THE **TRANSITIONING MILITARY** HELICOPTER PILOT

MILITARY TO CIVILIAN PILOT

BY MICHAEL TOTH

Many times when I was flying a UH-60 Black Hawk while stationed at Schofield Barracks, Hawaii, I thought about how great this job is! There were also many times I thought about potential job prospects that would be available to me as a helicopter pilot in the civilian world if I decided to leave the military. To be honest, I overvalued my military experience and how it would transfer to the civilian aviation market. I thought: *What company wouldn't want to hire me?* I flew one of the most advanced military helicopters at the time and I was well trained. I flew VIPs, conducted many sling-load, firefighting, disaster-relief, IFR and NVG operations. I was a catch! I would easily walk into one of those corporate aviation departments I heard so much about, and walk out with a job offer. I was wrong.

I served in the U.S. Army from 1984 to 1992. After a couple of years fumbling around with college, I realized it wasn't for me and I needed to move on to Plan B. I enlisted in the Army as a 31V, tactical radio repairman. After a couple of years serving as an enlisted soldier, I applied for flight school and was accepted with a start date in January 1987, the same month my first child was due to be born. I served as a warrant officer in 1987-1992. I honestly thought I was going to make Army Aviation a career. Life introduced alternate plans, and I made the decision to leave the military.

I thought it would be a smooth transition to the civilian market. Like most of my military colleagues who were also planning on returning to the civilian market, we were wondering: *Where do we start?* We used to review the advertisements in the *Army Times,* where offshore oil-rig flying was the only job listed. However, being born and raised in New York, I wanted to get a job as a corporate pilot in the Northeast. As my transition out of the Army began, I researched the companies throughout the country that had helicopter operations.

When my separation from the Army was complete, I returned to New York and began the process of locating and researching all of the helicopter operators in the Northeast. I would drive to those departments to drop off a resume and hopefully speak to someone. I made countless phone calls, sent countless letters, and began attending meetings with regional groups such as the Northeast Regional Helicopter Council. During one of these meetings, I got the attention of the chief helicopter pilot from a company in Trenton, New Jersey. Finally, a breakthrough! He invited me down to tour the facility where he was employed, and he became my mentor.

I was told that local experience was important in the Northeast Corridor before I could move on to the corporate operators. I secured a position with a sightseeing tour company in the NYC area, followed by a couple of years with a reputable Part 135 operator, and I became familiar with the NYC corridors and executive transportation. After acquiring the necessary experience, continually attending many industry related meetings and conferences, and interacting with my mentor, my dream was realized.

I was offered a job in 1997 and flew for 25 years with that Fortune 100 corporate flight department that I had dreamed about. I had the opportunity to fly numerous variants of the S-76 helicopter and Gulfstream jets, and held various leadership positions. As one of my military friends said, "Stick with it, 100 noes equals one yes!"

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MAINTENANCE MINUTE

BY MARK TYLER

THE STANDARD YOU WALK PAST

There's an old saying in leadership circles: "The standard you walk past is the standard you accept." Nowhere is that more true than in helicopter maintenance.

We operate in an industry where details matter — torque values, safety-wire orientation, hardware stack-up, paperwork precision. More often than not, it's not the big violations that erode our standards. It's the small things: a drip pan left full, a wrench not returned, a dirty cowl fastener.

When we ignore these minor oversights, we send a silent message: "This is OK." That message becomes the new norm. Over time, the baseline of excellence shifts — not by policy, but by passive permission. And once a new, lower standard becomes common, it can be difficult to reverse without intentional effort and cultural reset.

As a leader, technician, or inspector, your greatest influence might not be what you say, but what you tolerate. That loose wire bundle you walk past? The smudged placard? The improperly stowed gear? Each is an opportunity to uphold or erode the culture you're trying to build. Leadership is just as much about silent example as it is spoken instruction.

And this isn't limited to the shop floor. The way we document our work, the precision we apply during inspections, the way we clean up after ourselves — these are all visible markers of our mindset. They speak to whether we believe in professionalism as a value or just a policy. Because every technician who sees you correct a small issue learns that standards matter, but everyone who sees you ignore one gets the opposite message.

This isn't about nitpicking or micromanagement; it's about stewardship. Our helicopters reflect our standards, and our standards reflect our mindset. A clean, organized, and consistent workplace reinforces professionalism, pride, and precision. It tells the team: What we do matters; how we do it matters more.

This mindset applies whether you're the one turning the wrench or the one leading the team. Excellence is contagious when modeled, expected, and reinforced consistently. It begins with the smallest choices made throughout the day.

So, the next time you see something that isn't right: say something. Fix something. Teach something. Because the standard you walk past today will shape the standard your team lives by tomorrow. Let's be the kind of leaders who raise the bar by what we notice — and by what we no longer ignore.

About the author: *Mark Tyler dedicated the majority of his career to serving the helicopter EMS community, from base mechanic to director of maintenance. As vice president and general manager of Precision Aircraft Services, Tyler now serves helicopter operators from many sectors, including air ambulance, law enforcement, private owners, etc. When not at work, he can be found spending time with his family or sitting in a tree stand.*

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A Robinson R44 lands in the middle of U.S. Route 19W in Sioux, North Carolina to evacuate people who were trapped when flooding washed away both ingress and egress bridges this summer.

Photo: Brandon Harrell IG: @harrellwhitetailranch

A Coastal Helicopters Bell 205A1++ pulls water from a Los Angeles County pumpkin during a fire in the Agua Dulce area.

Photo: Miki Przybylski IG@aeroequine

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REDEFINING HEMS CAPABILITIES IN THE SINGLE-ENGINE CLASS

As demand for Helicopter Emergency Medical Services (HEMS) continues to rise, operators are increasingly challenged to deliver high-quality patient care while managing economic constraints and operational complexity. Whether serving rural communities or congested cityscapes, today's HEMS operators need aircraft that offer mission flexibility, lower operating costs, and advanced medical capabilities — all in one platform. The Leonardo AW09 answers that call with precision.

This next-generation single-engine helicopter delivers an unmatched blend of performance, adaptability and value, making it a game changer for EMS providers looking to modernize their fleets. Designed with the aim to add value to the whole EMS value chain – from pilots to maintenance engineers to medical professionals and naturally patients – the AW09 combines the functionality of a light twin-engine aircraft with the efficiency of a turbine single, redefining what's possible in the HEMS mission set.

Cabin Space That Supports Critical Care

At the heart of the AW09's EMS value proposition is its **exceptionally spacious, modular cabin**. Unlike traditional single-engine helicopters, the AW09 offers a cabin volume that rivals many twin-engine competitors. Its **flat-floor design** and **high cabin ceiling** provide ample room for full patient access — from head to toe — supporting complex in-flight interventions when seconds matter most.

The unobstructed cabin can comfortably accommodate a minimum of **two medical crew members,** and is specifically engineered to support **advanced critical care configurations**. From basic patient transport to ICU-level missions, the AW09's interior can be tailored to regional needs, supporting both ground-based EMS protocols and airborne medical procedures.

Additionally, **wide clamshell rear doors** and compatibility with **powered stretcher loading systems** enhance both crew safety and patient handling. These features reduce physical strain on the medical team, minimize loading times, and improve patient outcomes during emergency response scenarios. Whether the mission is neonatal transport, trauma response, or inter-facility transfer, the AW09 enables a streamlined experience from ground to air.

The peculiar tail boom design combines a shrouded tail rotor that minimizes noise level with a high ground clearance. This minimizes the level of risk while the medical team works outside of the helicopter, while dramatically increasing comfort by eliminating the need to bend while loading a stretcher.

Efficiency Without Compromise

Despite its generous cabin dimensions and mission-ready flexibility, the AW09 retains the **economic advantages of a single-engine platform.** With **operating costs** comparable to legacy aircrafts in the same weight class, the AW09 empowers HEMS operators to expand their capabilities without inflating budgets by delivering a future-ready platform.

Fuel efficiency, simplified maintenance procedures, and reduced logistical overhead allow operators to deliver high-quality care while maintaining strict financial discipline — especially important in today's cost-sensitive healthcare and public service environments. The AW09 offers one of the most **cost-effective solutions** in the turbine single-engine market, enabling sustainable fleet expansion and long-term program growth. Its **composite airframe** further supports cost-effectiveness through enhanced durability, corrosion resistance, and reduced weight — leading to longer life cycles and fewer maintenance intervals.

Advanced Avionics and Pilot-Centric Design

For pilots, the AW09 is more than capable; it's intuitive, responsive, and built for the mission. The cockpit is equipped with the **Garmin G3000H integrated avionics suite** featuring a large touchscreen interface, synthetic vision, advanced navigation tools, and real-time terrain awareness. This technology significantly reduces workload, improves decision-making, and enhances overall flight safety — especially during high-stress medical missions in poor weather or complex terrain.

The AW09 also features a **five-blade elastomeric main rotor** and **shrouded tail rotor**. Both contribute to a smoother ride, reduced vibration, and lower acoustic footprint. These benefits are particularly valuable in urban environments where noise sensitivity and ride quality are essential for both patient care and community relations.

Future-Ready Architecture and User-Driven Design

Unlike legacy platforms that have been retrofitted for EMS, the AW09 was built from the ground up with **operator feedback** — including that of EMS professionals who understand the real-world demands of medical flight.

Its **open architecture design** allows for future upgrades and mission-specific customization, ensuring that the aircraft evolves with emerging technology and regulatory changes. Whether your operation needs custom equipment racks, integrated communication systems or specific power supply configurations, the AW09 is ready to adapt.

The Smarter Choice for Evolving EMS Needs

The Leonardo AW09 represents a bold leap forward for HEMS providers seeking to balance cost, performance, and clinical capability. It brings the **interior volume and clinical access** of a twin-engine helicopter, the **economic footprint** of a single-engine aircraft, and the **flexibility** to operate in both dense urban settings and remote locations.

For EMS organizations ready to modernize their fleet or expand services without escalating operational costs, the AW09 offers a **future-ready solution** that doesn't compromise on care, safety, or capability.

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Tokyo Fire Department Modernizes Fleet with Additional Airbus H225

Japan's Tokyo Fire Department recently awarded Airbus Helicopters with a contract for an Airbus H225 following a tender. This new helicopter will replace an older aircraft as part of the organization's fleet modernization strategy. This acquisition reinforces the agency's commitment to maintaining high operational readiness across critical missions including aerial firefighting, search and rescue, emergency medical service, and disaster response.

"For nearly six decades, Airbus has stood alongside the Tokyo Fire Department in their unwavering commitment to public safety and disaster response," said Jean-Luc Alfonsi, managing director of Airbus Helicopters in Japan. "The Tokyo Fire Department's continued trust in the H225 reflects the reliability and adaptability that our helicopters bring to every mission. With its proven versatility and endurance across all conditions, the H225 is well equipped to support their lifesaving work for years to come."

The new H225 will be equipped to support urgent lifesaving operations with speed and precision. Its built-in search and rescue mode enables rapid target detection, while onboard emergency stretchers provide immediate medical care. A belly-mounted water tank adds aerial firefighting capability for swift response during critical situations.

The Tokyo Fire Department took to the skies in 1967 with its first helicopter, an Allouette III. Since then, the agency has maintained a steadfast partnership with Airbus, operating a reliable fleet that now includes three H225s and three AS365s, all committed to safeguarding and serving the community from the air.

As the latest addition to the Super Puma family, the H225 is recognized for its high performance in challenging conditions as well as its outstanding range and payload capacity. The aircraft's state-of-the-art avionics and autopilot systems provide increased safety while reducing pilot workload.

Across Japan, 24 H225 helicopters are actively operated by the Ministry of Defense and parapublic agencies, taking on critical roles ranging from search and rescue and aerial firefighting to VIP travel and the transport of personnel and goods.

Sikorsky and CAE Bring Digital Magnetic Anomaly Detection to MH-60R Maritime Helicopters

Sikorsky and CAE are collaborating to deliver the CAE Magnetic Anomaly Detection-Extended Role (MAD-XR) system for installation aboard U.S. Navy and Royal Australian Navy MH-60R Seahawk® helicopters. Designed and built by CAE, and integrated with the aircraft's primary mission computer by Sikorsky, the passive digital MAD sensor will give the world's most capable maritime helicopter a powerful new tool to detect and track submarines below the sea surface.

"MH-60R operators now have the option to significantly upgrade their anti-submarine warfare capability using a small, removable device that senses changes in the Earth's magnetic field caused by large metallic objects in the water," said Tish Rourke, Sikorsky Maritime Systems vice president. "With recent upgrades to mission computer software, this non-acoustic digital MAD sensor can easily be installed into any operational MH-60R aircraft, and can operate independently or collaboratively with other mission systems, such as the aircraft's sonobuoys or long-range active dipping sonar."

Compact and efficient, CAE's MAD-XR consists of highly sensitive magnetometers and a processor/interface unit weighing less than 20 pounds (9 kg) including cabling and mounting hardware. An audio alert informs the crew of a detected object, while the display provides contact and range details. The device can be installed inside an MH-60R aircraft tail cone without any permanent airframe modification, and can be quickly removed and installed on another MH-60R aircraft as operationally needed.

"CAE's MAD-XR offers a cutting-edge solution to detect and track submarines and other underwater threats, significantly enhancing military aircraft capabilities – it is the trusted choice for defense and security applications worldwide," said France Hébert, division president, Defense & Security Canada and Global Operations lead. "As a key partner to OEMs and global military forces, CAE provides unmatched expertise in designing and manufacturing digital magnetic anomaly detection systems. We are proud to support their integration on the MH-60R maritime helicopter, ensuring superior performance in diverse operational environments."

Sikorsky, CAE, the U.S. Navy, and Royal Australian Navy teamed to integrate, test and optimize the CAE MAD-XR capability. Two events occurred to bring the digital MAD capability to the MH-60R fleet.

- In early 2024, the U.S. Navy released new software and hardware to MH-60R operators that will allow MH-60R aircraft to accept the digital MAD system. The capability was included in advanced technology upgrades the U.S. Navy releases to MH-60R operators every other year to ensure mission effectiveness and operational readiness.
- In September 2024, Sikorsky was awarded a $21 million U.S. Navy contract — with CAE subsequently subcontracted — to deliver 20 DMAD kits for the Royal Australian Navy; six for the U.S. Navy; and two for evaluation by the U.S. Navy Reserve. Deliveries are to be completed in May 2026. The contract includes options for additional U.S. Navy orders of 24 kits each in 2025 and 2026.

Cliff Kyle, general manager Sikorsky Australia, welcomed the significant capability announcement and commended the Royal Australian Navy for being the first MH-60R operator to install the digital MAD capability on its fleet of MH-60R aircraft.

"Through our partnership with the Royal Australian Navy, Sikorsky Australia's workforce look forward to playing their role in fielding and sustaining this important and cutting-edge capability, which further strengthens Australia's MH-60R Seahawks' fleet lethality," Kyle said.

The CAE MAD-XR sensor offers significant improvements over the AN/ASQ-81 Magnetic Anomaly Detection (MAD) sensor installed on former U.S. Navy SH-60B helicopters. Externally mounted and attached to the aircraft via a cable and reeling machine, the previous MAD sensor weighed 90 pounds and trailed in the air a short distance behind the aircraft.

United Rotorcraft Secures First International Firehawk® Contract with Colombian Air Force

United Rotorcraft recently announced its first international contract for the Firehawk helicopter, following a groundbreaking agreement with the Colombian Air Force. This contract marks a significant milestone in the global recognition of the Firehawk as a premier aerial firefighting and emergency response asset.

Under this agreement, United Rotorcraft will be converting two legacy UH-60L Black Hawks to the Firehawk configuration. This includes the installation of United Rotorcraft's exclusive high landing gear, a 1,000-gallon Dart Aerospace composite belly tank, and an advanced avionics suite designed to improve situational awareness during mission-critical operations.

Colombia has a long-standing legacy of leadership in Black Hawk operations. The Colombian Air Force was the first international operator of the Black Hawk and the first to deploy an armed fleet. The Colombian National Police was the first law enforcement agency to operate the Black Hawk. With this new acquisition, the Colombian air force becomes the first international operator of the Firehawk helicopter.

"Colombia has operated Black Hawk helicopters for 37 years, giving us highly experienced pilots and crew members trained specifically for firefighting missions," said General Luis Carlos Córdoba, commander of the Colombian Air Force. "This ensures the successful deployment and operation of the Firehawk in our country."

According to official data reported by WRadio on July 11, 2025, more than 7,300 wildfires were recorded in Colombia last year, affecting approximately 290,000 hectares (716,000 acres).

"Wildfires have become a global phenomenon and a growing concern for communities across the world," said Larry Alexandre, president of United Rotorcraft. "We are honored to introduce the Firehawk's unmatched capabilities to our first international customer and to deliver this life-saving asset to the Colombian Air Force as they strengthen their capacity to protect land, wildlife, and communities from the escalating threat of wildfires. The Firehawk has become a benchmark for public agencies across the U.S. West, and we are convinced it will become equally popular and effective beyond the U.S. borders, starting with Colombia."

This effort was the result of a unique collaboration between the Colombian National Unit for Disaster Risk Management (UNGRD), the Colombian Air Force (FAC), and the Colombian Aeronautical Industry Corporation (CIAC).

"The Firehawk is the world's most powerful aerial firefighting platform," said Carlos Carrillo, director of UNGRD. "This technology will enhance emergency response capabilities in moorlands, jungles, savannas, coastal regions, and other hard-to-reach areas."

United Rotorcraft is dedicated to delivering cutting-edge aerial firefighting capabilities through innovation and global collaboration. The introduction of the Firehawk into international service represents a major advancement in global wildfire response efforts.

magniX and Robinson Helicopter Company to Develop Electric Battery R66 Helicopter Demonstrator

magniX and Robinson Helicopter Company (Robinson) have agreed to jointly develop an electric battery demonstrator based on the Robinson R66 platform. The two companies plan to have the first flight of this demonstrator take place in late 2026.

magniX will provide its fully integrated electric powertrain for helicopters, including the first of its range of lightweight, high-speed HeliStorm engines designed for rotorcraft applications. It will also share its Samson batteries, with the highest energy density in aerospace and unmatched cycle life.

"We are excited to be working with Robinson to lead the transformation of the helicopter industry by creating the next generation of vertical-lift propulsion systems," said Reed Macdonald, CEO of magniX. "We have already flown two groundbreaking electric Robinson helicopters, and I look forward to deploying our HeliStorm electric engines and Samson batteries under this program."

Bringing the Electric Helicopter Age to Life

In 2022, magniX powered the first flight of a retrofitted electric Robinson R44 helicopter, followed in March 2025 with the world's first piloted flight by a hydrogen-electric helicopter, another retrofitted R44. In 2026, the electrification of the R66 – one of the world's most ubiquitous helicopters with over 1,500 units in service and more than 100 new units sold every year – will revolutionize the vertical takeoff and landing (VTOL) market with its single rotor simplicity and flight proven capabilities.

"magniX's proven experience in electric propulsion and previous experience with the R44 makes them the right partner to collaborate on alternative powerplant solutions," said David Smith, president and CEO of Robinson Helicopter Company. "This agreement allows us to develop market-leading, zero-emission solutions that meet the needs of many critical mission types."

"We have demonstrated the clear cost, noise and safety benefits of magniX's fully-integrated electric powertrains," said Riona Armesmith, CTO of magniX. "magniX technology is well suited to meeting the needs of the helicopter market, and we're proud to partner with Robinson as they seek to develop cost-effective electric helicopters with a clear path to certification."

Airbus and Leonardo to Launch NH90 BLOCK 2 Studies Responding to a Request From NAHEMA

Responding to a request from NAHEMA (NATO Helicopter Management Agency), Airbus Helicopters and Leonardo are joining forces to carry out an architecture study to define the basis of the NH90 long-term evolution, known as Block 2.

The Block 2 upgrade will include key structural improvements to the aircraft such as modular avionics, greater configuration commonality, improved maintenance and performance, as well as new capabilities in collaborative combat, connectivity and crewed-uncrewed teaming. The study is expected to be contracted with NAHEMA this year. It should allow nations to decide the next steps for the Block 2 evolution in a timeframe coherent with other ongoing studies on next-generation capabilities and technologies.

"There are several studies running at the moment at NATO, EU, and national levels to assess the future of military helicopters," said Bruno Even, CEO of Airbus Helicopters. "Together with Leonardo we believe that the NH90 will have a central role to play in the future of European defense capabilities. The NH90 Block 2 evolution will benefit from some of the technologies being investigated by the European Next Generation Rotorcraft Technologies study that we are collaborating on in partnership with Leonardo."

"The NH90 Block 2 study clearly complements on the longer term the evolution roadmap of the NH90 for which a major step based on the Software Release 3 contract (also called Block 1) had already been outlined last year," said Gian Piero Cutillo, managing director of Leonardo Helicopters. "We're committed to delivering a study able to meet NAHEMA's expectations as well as bearing in mind nations' needs and their evolving rotorcraft capability requirements."

In May 2024 NAHEMA and NHIndustries (NHI) signed a short-to-medium term program enhancement plan known as Block 1 (also called Software Release 3), involving various nations, to boost their in-service fleets' capabilities in terms of tactical information, data exchange, sensors, navigation and weapon integration. The Block 2 architecture study will of course capitalize on the Block 1 upgrade.

The teaming between the two manufacturers stems also from the memorandum of understanding signed between the two partners in July 2024, with the ultimate goal to perform an extensive analysis of the NH90 helicopter program status and explore future potential solutions for its evolution.

HeliLadder Headquarters Has a New Facility

HeliLadder recently announced the acquisition of a new facility to support the production of its newest product line: the highly anticipated L-Series. The new model has generated significant buzz within the industry, with preorders steadily coming in as the first production run kicks off.

The new L-Series, a cantilevered, fixed-length, and completely brace-free ladder, is specifically tailored for rotorhead access on Robinson aircraft, as well as aircraft equipped with external tanks and restrictive landing gear attachments. Three models are now available: the L6, L7, and L8, each featuring integrated handrails, wide rungs, tool trays, wheels, and the iconic "HeliLadder Orange" powder coat.

In order to meet the ever-growing demand for this new product line, as well as its expanding modular MX5+ system, HeliLadder's leadership recognized the need to bolster production capabilities. The new facility, based in Bend, Oregon, offers generous space for growth while enhancing the ability to control manufacturing processes that achieve the quality standards customers know and expect of HeliLadder.

"The L-Series represents our commitment to innovation and safety in the aviation industry," said Dale Neubauer, CEO at HeliLadder. "By investing in a new facility, we are positioning ourselves to deliver this product at scale, ensuring that our customers can benefit from its features as soon as possible."

Looking forward, the acquisition of the new facility marks a clear commitment to evolving and leading within the aviation industry. The L-Series is set to herald a new chapter of safety for maintenance teams, a development made possible through this strategic growth.

HeliLadder is unwavering in its goal to provide innovative solutions that cater to aviation professionals, ensuring they have the essential tools to carry out their flight-critical work safely and efficiently. As production gears up, the aviation community eagerly awaits the arrival of the L-Series and the positive changes it is poised to bring.

Aviation Specialties Unlimited Celebrates 30th Anniversary

Aviation Specialties Unlimited (ASU) recently announced it is celebrating its 30th anniversary.

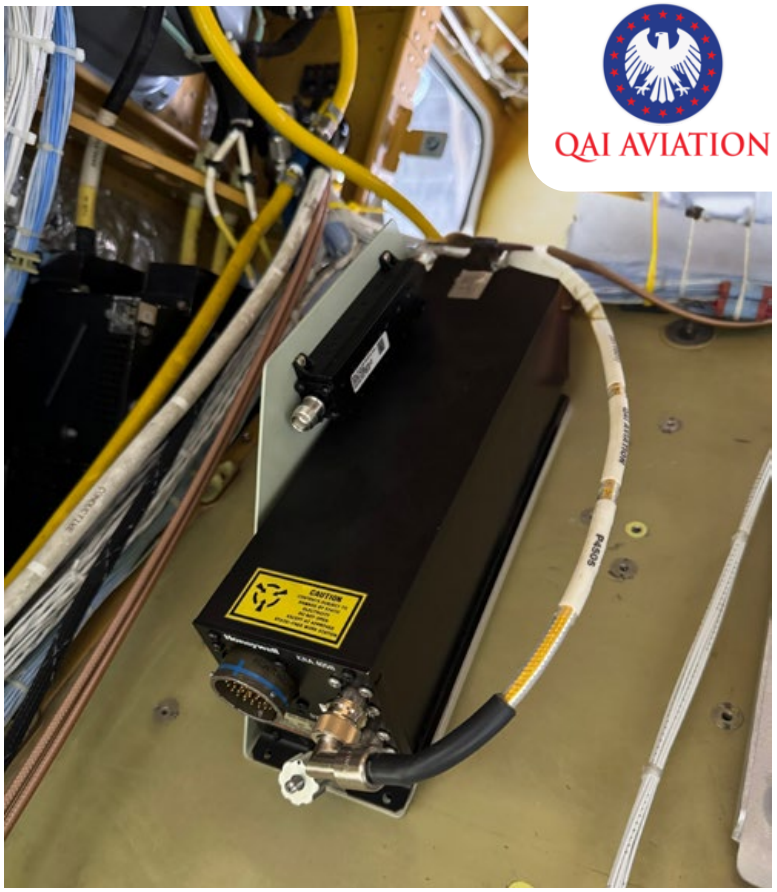
"For the past 30 years, we have been extremely blessed to make flying at night safer," said ASU founder Mike Atwood. "HEMS operators, law enforcement, search and rescue, firefighters, military, and defense organizations worldwide placed their trust in us early on. We do not take that trust for granted. I want to thank everyone for their business and loyalty over the past three decades."

ASU first introduced NVIS systems to the HEMS community in the Asheville, North Carolina, region, equipping the Mountain Area Medical Airlift (MAMA) unit in a mountainous, rural area with F4949 NVGs from ITT. MAMA became one of the first civilian operators to adopt this life-saving technology. Shortly after, law enforcement units also received approval to use NVGs.

ASU quickly expanded beyond equipment sales to meet growing customer needs. The company's first employee, Hannah Gordon, now serves as chief operating officer. "Sales is only one part of ASU," said Gordon. "We also added the ability to modify aircraft cockpits, train pilots and crew members, and service goggles to meet the manufacturer requirements and customer needs. Everything we strive to do at ASU is intended to help our customers. Our efforts include anticipating their needs and taking steps internally to make sure we help them before, during, and after the initial sale. This enables us to help organizations around the world. Whether they are upgrading equipment, servicing equipment or starting a brand new NVG program, we can help."

In 2019, ASU once again advanced the industry with the introduction of Aeronox — a lightweight goggle mount and battery pack. Later that year, the company unveiled a prototype of its own NVG: the E3. By 2023, the E3 Goggle entered full production and received FAA approval. Today, nearly 1,000 E3s are in use worldwide.

Over the past 30 years, ASU has sold more than 10,000 night vision goggles — including those from ITT, L3, and its own E3 line. The company has trained over 8,000 pilots, crew members, and FAA inspectors, and modified more than 2,000 aircraft. ASU also holds more NVG Supplemental Type Certificates (STCs) than any other organization in the world. "ASU started with a mission to make night flying safer, and we remain committed to that purpose today," said ASU President Dr. Joseph Estrera. "We've evolved from a distributor to a full-fledged NVG manufacturer, and we continue to innovate to support our customers. Thank you to every customer and industry partner who made this milestone possible."



QAI Aviation Receives FAA Approval for 5G Filter STC for EC135

QAI Aviation recently announced the FAA approval of its 5G filter Supplemental Type Certificate (STC) for the EC135 helicopter. This innovative solution is designed to enhance the performance of helicopters in 5G environments by minimizing signal interference and optimizing avionics functionality.

The STC complies with FAA AD 2023-11-07 regarding limitations due to 5G interference. AD 2023-11-07 was issued due to findings that radio altimeters may not function as intended when subjected to interference from wireless broadband operations within the 3.7–3.98 GHz frequency range (5G C-Band). These undetected anomalies in radio altimeter reading could compromise the ability to maintain safe flight and landing. The STC was designed to be a simple installation in the field and mitigate 5G interference for aircraft with the KRA-405B installed.

The STC is currently approved for the EC135 model, with expansion to additional leading helicopter platforms underway in the Approved Model List (AML). This marks the initial phase of a broader rollout, ensuring safety and compliance for a wider range of operators and aircraft.

Bell Showcases MV-75 FLRAA and Flight School Next Solution at Army Aviation Industry Days

While the U.S. Army and Team FLRAA are moving forward with the MV-75 FLRAA, Bell is also moving out on the Army's Flight School Next program and attended the Army Aviation's Industry days to showcase its vertical lift solutions. Industry Days provided an exciting platform for Bell to discuss the transformative capabilities of the MV-75 FLRAA and demonstrate how its innovative Flight School Next training solution tackles the challenges of the current Army trainer and curriculum.

Partnering To Deliver the Next-Generation of Army Aviation

Bell and the U.S. Army are closely collaborating to deliver the MV-75 FLRAA to warfighters. Following the recent delivery of MV-75 FLRAA virtual prototypes, the team is continuing to move forward as it looks toward completing the critical design review (CDR). Industry Days enabled Bell to have in-depth discussions with the Army about how the MV-75 FLRAA will support the warfighters with speed, range, and lethality.

The MV-75 FLRAA represents the next generation of Army aviation with unmatched capability that will transform how the service completes multiple missions including troop transport and Medevac. Its modular open systems approach (MOSA) enables the Army to rapidly and affordably upgrade the weapon system to ensure overmatch for decades to come.

As partners, it is crucial for Bell and the Army to be closely aligned on the MV-75 FLRAA. The Army needs this capability in order to be effective on the modern battlefield. By working alongside the Army, Bell can develop the weapon system the warfighter needs.

Flight School Next: An Opportunity to Transform Training

Bell is leading the charge for Flight School Next, working with several industry leaders including V2X, DigiFlight, Delaware Resource Group (DRG), Alpha 1 Aero and TRU Simulation. By leveraging Bell's proven 505 and previous experience in providing military training solutions, along with our collaborators' expertise in various disciplines, we can execute a modern, high-tech, and rigorous training program.

The Army got hands-on with the 505 during Industry Days and witnessed its effectiveness in training pilots to enhance their operational readiness and fundamental flying skills, including emergency maneuvers. Beyond understanding how student pilots could fly the 505 to build their skills, the Bell team highlighted its safety enhancements aimed at protecting pilots as they undergo their training.

While the 505 attracted major attention with its impressive flight demonstrations, it is only one component of Bell's comprehensive solution for the Flight School Next program. Utilizing modern training technology and Bell's proven training approach, the Army can produce a new generation of aviators who are confident and prepared for dynamic and challenging combat environments.

With a history of providing military training aircraft dating back 70 years, Bell deeply understands the U.S. Army's training needs. From the H-13 to the UH-1 and TH-67, Bell has proven itself as a trusted partner delivering purpose-built solutions with tremendous results. Bell looks to continue this legacy by partnering with the Army and working together to develop training solutions grounded in operational reality and setting student pilots up for success.

Bell supports warfighters with cutting-edge vertical-lift solutions that empower them to complete their missions. Bell was selected to deliver the MV-75 FLRAA, a revolutionary solution for the maneuver force that enables Long-Range Large-Scale Air Assault. For Flight School Next, Bell intends to bring a revolutionary solution to training Army aviators.

Dallas Avionics Completes Minnesota State Police Training

Dallas Avionics recently announced that Dallas Avionics Government Agency Sales Executive Cody Klaehn completed training for the Minnesota State Police on their TDFM 9100 and AEM audio and PA system. The class consisted of rescue specialists and aircraft personnel, and took place several days in St. Paul at their office and hangar.

The equipment installed in their Bell 429 in conjunction with other mission critical devices will be used primarily for search and rescue (SAR) missions.

“SAR missions can be some of the most daunting tasks with numerous challenges,” said Klaehn. “Good communications should not be one of those challenges. The equipment the Minnesota State Police were trained on is proven to help air units communicate quickly with other air and ground assets. Every second counts when trying to locate someone that is lost or injured. Knowing how to effectively use the communications equipment helps increase the odds of someone being found. It is an honor to help the Minnesota State Police with their mission critical training.”

From left to right: Dr. Johannes Hain, CEO RST / Eberhard Lang, head of Advisory Council RST / Sebastian Griesbach, legal counsel RST / Dr. Thomas Nicolay, CSO RST / Wolfgang Reiser, advisory council RST / Michael Weissenboeck, head of sales RST / Jeroen Peddemors, CEO EHC / Floris van Dort, CEO/CFO EHC / Jonas Goercke, head of business line fight training, data & models RST

REISER
SIMULATION - TRAINING

European Heli Center and Reiser Officially Launch Full-Flight Simulator Project with Kick-Off Meeting

Following the announcement of their landmark agreement at VertiCon in Dallas this March, European Heli Center (EHC) and Reiser Simulation and Training GmbH have officially kicked off their joint project with a first project meeting held at Reiser's headquarters in Berg, Bavaria.

This meeting marks the operational launch of a project that will bring a world-class H135/H145 Level D full-flight simulator to EHC's upcoming training center at Lelystad Airport near Amsterdam. The device will support multi-mission pilot and crew training for civilian, commercial, EMS, military, and offshore operations.

Set in the picturesque surroundings of Lake Starnberg, the teams came together for productive discussions and shared planning. More than a symbolic gathering, this marked the first formal project milestone, outlining key technical steps, timelines, and collaboration structures to successfully bring the simulator into operation.

A Shared Vision for Advanced Helicopter Training

The Level D full-flight simulator, featuring Reiser's proven roll-on/roll-off platform, will allow training on both H135 and H145 aircraft models within one device. This flexibility ensures maximum training efficiency and a future-ready solution for EHC's expanding operations.

"We truly enjoyed hosting EHC at our home base in Berg," said Dr. Thomas Nicolay, CSO of Reiser Simulation and Training. "The collaborative spirit and shared purpose set the tone for what we believe will be a highly successful partnership."

"This project represents a major leap forward in our mission to provide world-class helicopter training," added Jeroen Peddemors, CEO of European Heli Center. "Together with Reiser, we are shaping a future-ready training environment designed to serve not only European operators but pilots and crews around the globe."

A Global Invitation to Operators and Training Partners

With this project officially underway, European Heli Center warmly welcomes helicopter operators and pilots from around the world to begin early planning for their future training needs. As the simulator and training center take shape, the team is fully available to support prospective clients in developing customized training roadmaps to ensure seamless onboarding once operations begin.

Conveniently located near Amsterdam International Airport — a major hub with multiple direct flight connections worldwide — the state-of-the-art training facility is easily accessible for operators and crews from across the globe. From pilot training planning to logistical and travel coordination, EHC is committed to providing a comprehensive and accessible solution for every operator, large or small. Great training starts with great preparation at European Heli Center.

Recoil Obtains FAA STC for Internal UH-60 Black Hawk Aerial Fire Suppression System Tank

Recoil Aerospace Inc. recently announced U.S. Federal Aviation Administration (FAA) approval of its Tsunami Internal AFSS 790-gallon tank for the UH-60 Black Hawk series helicopters.

U.S.-based Recoil's Supplemental Type Certificate (STC) SR12058AK for the UH-60 Black Hawk series helicopters represents the only carbon fiber system of this design approved for UH-60 operations.

The approval expands the Recoil family of aerial fire suppression products, joining the already FAA-approved Tsunami External AFSS 1,000-gallon Tank for Super Puma and Black Hawk helicopters.

This breakthrough STC is applicable to all UH-60 type certificate holders as well as all model variants of the UH-60 and S-70 Black Hawk.

Importantly, the Recoil AFSS tanks are designed and manufactured exclusively in the United States of America. With the approval, U.S. firefighting programs can add this key technology upgrade for the current wildfire season. Recoil AFSS tanks are available for immediate acquisition. Given high-volume water drops and rapid turnaround time, the UH-60 AFSS tanks can help control new wildfires and protect homes in an urban interface fire outbreak.

"With these multiple STC's approved, we are equipping fire aviation operators here in the U.S. and globally at the start of an already active fire season," states Recoil President and Pilot Joseph Rice. "Our rapid installation combined with the industry's fastest approved airspeed allows high volume water delivery with rapid turnarounds."

Recoil AFSS tanks are backed by the company's U.S.-based customer support and service.

Key features of the tank system include: In-cabin mounting; 790-gallon capacity, left or right side snorkel placement for rapid hover-filling; 140-knot approved VNE airspeed; five to seven second salvo drop; and – importantly – it can be ground-filled from a fire hydrant or water tender.

"This design brings high-volume water drops with punching power to the fire line," notes Rice. "Fire helicopter operators can fly the most effective aerial suppression operations possible; they can be fire-ready with Recoil."

Increased airspeeds can bring more efficient aerial suppression operations, with rapid response to incidents and faster turnarounds between drops.

The Recoil AFSS design has caught the eye of U.S. fire/utility operators like Montana's Central Copters.

"This is a game changer for us," stated Will Jacobs, chief pilot of Central Copters and Recoil's launch customer for the Tsunami Internal AFSS Tank. "The installed Recoil Tsunami Internal AFSS Tank still allows us access to the UH-60 cargo hook for additional mission assignments without having to remove it due to its light weight."

COULSON AVIATION

Coulson Aviation Canada to Conduct First Night Vision Aerial Firefighting Operations with BC Wildfire Service

Coulson Aviation Canada recently announced it has been awarded and started a 70-day contract by the BC Wildfire Service (BCWS) to provide one of its state-of-the-art Sikorsky S-61 Type 1 helitankers equipped for night vision goggle (NVG) operations. This partnership marks the first time Coulson will conduct live-fire NVG aerial firefighting missions on Canadian soil.

As the global leader in private NVG aerial firefighting, Coulson Aviation has set the benchmark for safe and effective night suppression. With thousands of NVG flight hours and tens of millions of gallons delivered at night, Coulson's rotary-wing fleet is the most proven and trusted in the industry. Since earning the world's first NVG firefighting certification from Transport Canada in 2011, followed by the first approvals of their kind in Australia and the United States, Coulson has expanded to operate a fully NVG-equipped rotary-wing fleet. This includes the flagship Quick Reaction Force (QRF) program, operated

BY THE NUMBERS

1,000,000

The estimated lives that have been saved over the last 50 years by helicopters, according to Sikorsky Archives. This includes civilian rescues in natural disasters, accidents, and medical emergencies, as well as military search and rescue (SAR). Contributing to this million in part: the U.S. Coast Guard HH-60 Jayhawk fleet saved over 11,900 lives in over 48,300 SAR missions, and the NIH estimates an additional four lives are saved per every 100 HEMS deployments.

125,000,000

The USD purchase price, definitively announced this past August, to be paid by Joby Aviaton, a company developing electric air taxis for commercial service, to acquire Blade Air Mobility to purchase Blade's urban air mobility passenger business.

258,700,000,000

The estimated USD amount to be spent on uncrewed aerial systems (UAS) by 2033, according to Military Embedded Systems. This includes procurement and research spending.

year-round in Southern California in partnership with the Orange County Fire Authority, the L.A. County Fire Department, and the Ventura County Fire Department. With this unmatched depth of operational experience, Coulson is proud to bring proven NVG aerial firefighting capabilities to Canadian wildfires.

"This contract represents an exciting milestone for Coulson Aviation Canada," said Britton Coulson, president and COO of Coulson Aviation. "We're proud to bring our global NVG firefighting experience to Canada and collaborate with the BC Wildfire Service to continue developing a program that enhances nighttime fire suppression capability in British Columbia."

The NVG-equipped S-61 helitanker is capable of delivering precise water drops in low-light conditions, extending operational effectiveness beyond traditional daylight limits. The partnership with BCWS will blend Coulson's international NVG experience with local expertise, ensuring a safe and effective integration into British Columbia's wildfire response strategy.

Coulson Aviation is proud to support BCWS as they enhance wildfire response through advanced night suppression strategies, built on proven global experience.

4,700

The number of attendees at last year's European Rotors VTOL Show and Safety Conference. Rotor Pro was with them and plans to be at this coming November's event in Cologne, Germany, with bonus print distribution of our next issue.

20,790

The number of military helicopters currently in service around the world, according to Defence IQ. This number represents the active fleet in 153 countries. An additional 3,402 are on order in over 60 countries. The S-70/UH-60 Black Hawk and Mi-8/17 are the most common types, representing together approx. 29% of the world's fleet.

30,000

The approximate number of Naval aviators who were trained in the TH-57C that's now replaced by the TH-73A. The last official TH-57C flight occurred this past July 30 when the venerable Sea Ranger accompanied by a TH-73A Thrasher attached to Helicopter Training Squadron (HT) 28 landed on the flight deck of the decommissioned aircraft carrier USS Lexington (CV 16) at Museum on the Bay in Corpus Christi, Texas.

Transportation Secretary Sean P. Duffy Unveils Rule to Unleash American Drone Dominance as Part of Innovation Agenda

U.S. Transportation Secretary Sean P. Duffy unveiled a new proposed rule on Beyond Visual Line of Sight (BVLOS) Aug. 5. This rule will unleash American innovation and safely integrate unmanned aircraft systems (UAS) into the national airspace system.

For more information about the proposed rule, see the fact sheet.

"We are making the future of our aviation a reality and unleashing American drone dominance. From drones delivering medicine to unmanned aircraft surveying crops, this technology will fundamentally change the way we interact with the world," Duffy said. "Our new rule will reform outdated regulations that were holding innovators back, while also enhancing safety in our skies. Thanks to President Trump, America – not China – will lead the way in this exciting new technology."

Previously, operators would have to get individual waivers or exemptions to use their drones without visual line of sight. These were approved on a case-by-case basis, and the process was cumbersome. By eliminating these requirements for BVLOS operations, the proposal will significantly expand the use-case for drone technologies in areas like manufacturing, farming, energy production, filmmaking, and the movement of products including lifesaving medications.

"Normalizing BVLOS flights is key to realizing drones' societal and economic benefits," said FAA Administrator Bryan Bedford. "Package delivery, agriculture, aerial surveying, public safety, recreation, and flight testing are just some of the uses we expect to see as we enable these innovative technologies while maintaining the safety of our National Airspace System."

"Today's NPRM (notice of proposed rulemaking) is a bold, forward-looking step that helps unlock the full potential of BVLOS drone operations, transforming how we monitor infrastructure, deliver critical supplies, advance precision agriculture, and speed up emergency response. Under President Trump's leadership, we are giving innovators a predictable, scalable pathway to conduct BVLOS missions, to ensure that the United States remains the global leader in drone technology. We look forward to public comment on this critical rulemaking," said Michael Kratsios, director of the White House Office of Science and Technology Policy.

The proposal also includes updated requirements for manufacturers, operators, and drone traffic-management services to keep BVLOS drones safely separated from each other and from manned aircraft.

Bell to Build X-Plane for Phase 2 of DARPA Speed and Runway Independent Technologies (SPRINT) X-Plane Program

Bell Textron Inc. has been down-selected for Phase 2 of the Defense Advanced Research Projects Agency (DARPA) Speed and Runway Independent Technologies (SPRINT) X-Plane program with the objective to complete design, construction, ground testing and certification of an X-plane demonstrator.

"Bell is honored to have been selected for the next phase of DARPA's SPRINT program and is excited to demonstrate a brand-new aircraft with the first-ever stop/fold technology," said Jason Hurst, senior vice president, Engineering. "This is an achievement we've been working towards for over 10 years, as we've leveraged our nearly 90-year history of X-plane development to bring new technology to our warfighters."

The goal of the program is to provide these aircraft with the ability to cruise at speeds from 400 to 450 knots at relevant altitudes and hover in austere environments from unprepared surfaces. In Phase 1A and 1B, Bell completed conceptual and preliminary design efforts for the SPRINT X-plane. Phase 2 includes detailed design and build culminating in flight testing during Phase 3.

In preparation for X-plane development, Bell has completed significant risk reduction activities, including demonstrating folding rotor, integrated propulsion, and flight control technologies at Holloman Air Force Base, as well as wind tunnel testing at the National Institute for Aviation Research (NIAR) at Wichita State University. Bell has a rich history of breaking barriers and of high-speed vertical lift technology development, pioneering innovative VTOL configurations like the X-14, X-22, XV-3 and XV-15 for NASA, the U.S. Army and U.S. Air Force. Bell continues to build on the legacy of the Bell X-1.

Joby Expands Manufacturing Capacity in California and Ohio, Adds New Aircraft to Its Fleet

Joby Aviation Inc. recently announced the expansion of its site in Marina, California. Now at 435,500 square feet, its aircraft production capacity has doubled to support the scale-up of commercial operations. Joby also expanded its flight test program with the addition of a new aircraft to its growing fleet.

"Reimagining urban mobility takes speed, scale, and precision manufacturing. Our expanded manufacturing footprint in both California and Ohio is preparing us to do just that," said Eric Allison, chief product officer. "We celebrated the opening of the new facility with the flight of our sixth aircraft, which earned airworthiness certification within a week of completion."

The new manufacturing space is a big step forward as Joby prepares to scale production and enter the market. Achieving this involves three key strengths.

Committed to American Innovation

Drawing on top talent at its California and Ohio facilities, Joby designs, builds, and tests its aircraft in the U.S. Using tools like advanced data analytics and 3D printing, Joby produces components that are lighter, stronger and more flexible. The company plans to add hundreds of full-time jobs at Marina to support increased aircraft production.

Advantage of Vertical Integration

Joby handles nearly every aspect of its aircraft and air taxi service in-house, from design and manufacturing to pilot training and operations. This vertical integration helps speed development, ensure quality, and accelerate testing and certification. It also lets Joby quickly and efficiently adapt its platform for other uses, including its hybrid hydrogen-electric propulsion testing.

Close Collaboration with Toyota

Toyota engineers are deeply integrated with the Joby team, providing counsel to support Joby's work across design, manufacturing, and quality. Toyota also helps optimize processes, streamline assembly, and offer advice related to the development of custom tooling to accelerate production.

Once fully operational, the expanded Marina site is expected to be able to produce up to 24 aircraft annually – nearly one every other week. It will also provide key capabilities, including its initial FAA production certification, conforming ground and flight testing components, pilot training simulators, and aircraft maintenance. This site strengthens Joby's broader manufacturing network that includes three additional facilities: Santa Cruz, Calif., the headquarters driving innovation and system architecture; San Carlos, Calif., focused on powertrain and electronics; and Dayton, Ohio, a newly renovated facility that will manufacture and test aircraft components for Joby's Pilot Production Line. The Dayton site demonstrates the capabilities required for FAA production certification and supports the company's plans to scale operations. Equipment installation is underway, with production ramping up to eventually build up to 500 aircraft a year at that location.

Strong support from local workforce and community-based organizations, elected officials, city and county leaders, and nonprofit partners were instrumental in bringing the expanded facility to life. In 2023, Joby was awarded a $9.8 million dollar grant from the California Governor's Office of Business and Economic Development (GO-Biz) to accelerate its growth. The company also benefited from a program through the California State Treasurer's Office that helped reduce equipment costs by $10 million, supporting Joby's efforts for today – and tomorrow.

Archer Begins Test Flights in Abu Dhabi

Archer recently announced the successful completion of an initial flight of its Midnight aircraft at Al Bateen Executive Airport in Abu Dhabi, marking a key milestone for its planned commercial deployment in the UAE and the expansion of its operations in the Middle East region.

With the support of the Smart and Autonomous Systems Council (SASC), the flight was witnessed by senior leadership from the UAE General Civil Aviation Authority (GCAA), the Abu Dhabi Investment Office (ADIO), the Integrated Transport Center, Abu Dhabi Aviation and Abu Dhabi Airports, along with representatives from Archer's regional partners. Focused on evaluating the aircraft's VTOL performance in UAE-specific conditions including temperature, humidity and dust exposure, the test flight allows Archer to validate readiness for commercial deployment.

Following this milestone, Archer will expand its flight-testing program for Midnight in the region, gathering additional data to support its certification and commercialization plans in both the UAE and other key markets.

"This flight marks a significant step towards realizing Abu Dhabi's ambition to lead the world in advanced urban air mobility," said H.E. Badr Al-Olama, director general of the Abu Dhabi Investment Office. "Through the Smart and Autonomous Vehicles Industry (SAVI) Cluster, we are enabling companies like Archer to test, certify and scale next-generation air mobility solutions, reinforcing our position as a global launchpad for innovation and a hub for transformative technologies."

"Our initial test flight operations in the UAE represent a critical milestone as we prepare for our commercial deployment in Abu Dhabi," said Adam Goldstein, CEO and founder of Archer Aviation. "Testing our aircraft in actual operating conditions in the middle of summer provides us with the data we need to progress our commercial and certification efforts both in the UAE and in the U.S."

The test flight supports Archer's Launch Edition commercialization program with Abu Dhabi Aviation, which aims to establish air taxi services in Abu Dhabi. The announcement comes as Archer continues to advance its certification and commercialization efforts in the UAE and beyond, building on recent achievements including regulatory design approval for the UAE's first hybrid heliport at Abu Dhabi Cruise Terminal and ongoing partnerships with leading regional operators.

The Launch Edition program represents Archer's approach to establishing commercial operations in key early adopter markets. Abu Dhabi's role as Archer's first Launch Edition market positions the emirate as a global leader in urban air mobility deployment, demonstrating Abu Dhabi's commitment to innovative transport and sustainable mobility solutions.

North Dakota Completes Landmark BVLOS Medical Drone Delivery

The future of rural aviation recently took flight as iSight Drone Services, in collaboration with the Northern Plains UAS Test Site (NPUASTS) and Vantis, North Dakota's statewide BVLOS system, successfully completed a groundbreaking beyond-visual-line-of-sight (BVLOS) drone delivery of medical supplies across more than 80 miles of western North Dakota prairie from Williston to Watford City.

This operation illustrates the real-world impact of BVLOS medical drone delivery in rural communities. The operation was part of Project RuralReach, a collaborative initiative led by the University of North Dakota Center for Innovation and funded by the U.S. Economic Development Administration (EDA) through its ARPA Economic Adjustment Assistance Program. The project aims to demonstrate how unmanned aerial systems (UAS) can enhance quality of life, economic resilience and access to critical services in rural communities.

Unlike many previous UAS deliveries conducted in tightly controlled urban environments, this mission navigated dynamic, uncontrolled airspace populated by low-flying, non-cooperative aircraft potentially operating without transponders. Safely conducting operations in this environment requires sophisticated infrastructure to detect and deconflict all air traffic in real time. That capability was made possible by Vantis, North Dakota's first-of-its-kind statewide UAS network. Designed specifically to enable safe, scalable BVLOS operations, Vantis provides integrated surveillance, aircraft detection and command-and-control connectivity across rural regions where traditional air traffic systems fall short.

"Rural communities don't have the luxury of cooperative-only airspace," said Erin Roesler, deputy executive director of the NPUASTS. "What makes this operation so impactful is that it proves BVLOS can be done safely even in complex, real-world rural environments, and that it can bring real value to North Dakota communities. Supporting those missions – that's the value of Vantis."

Part of Project RuralReach

The demonstration was conducted under Project RuralReach, a federally funded initiative led by the University of North Dakota Center for Innovation in partnership with NPUASTS, Vantis and regional research partners. The iSight demonstration represents the first use case under the project, which also aims to enable a total of three UAS solutions to rural communities.

iSight Drone Services received $50,000 through the program to test long-range delivery operations in western North Dakota. The goal is to prove how drone technology can support:

Rural Delivery – Reliable access to medical and essential supplies

Sustainable Operations – Extended range through renewable power

Emergency Response – Rapid deployment in times of disaster

This medical supply flight is a major step forward in building a statewide UAS commercialization strategy that connects drone technology to public benefit.

"The Vantis team played a crucial role in the success of today's flights. Their diligent and tireless work behind the scenes in planning and ultimately executing the flight fully illustrates why they are recognized as leaders in UAS development," said Jeff Barta, project manager with the Center for Innovation. "Their quiet contributions may not be apparent to the public eye, but were certainly recognized by our team and deeply appreciated. Their performance, from our original briefing to the final landing, can only be described as impeccable."

North Dakota continues to lead the nation in UAS integration, driven by a vision to serve rural communities with cutting-edge, life-changing technologies. The success of this flight is not only a win for drone innovation, but a win for access, equity and the future of rural logistics.

www.recoil-usa.com

News From Recoil Aerospace, the U.S. Leader in Aerial Firefighting Tank Design

Kentucky-based Recoil Aerospace is pleased to recognize the vital firefighting efforts by the team at Montana's Central Copters, the launch customer for Recoil's breakthrough UH-60 Black Hawk carbon fiber Aerial Fire Suppression System (AFSS) tank.

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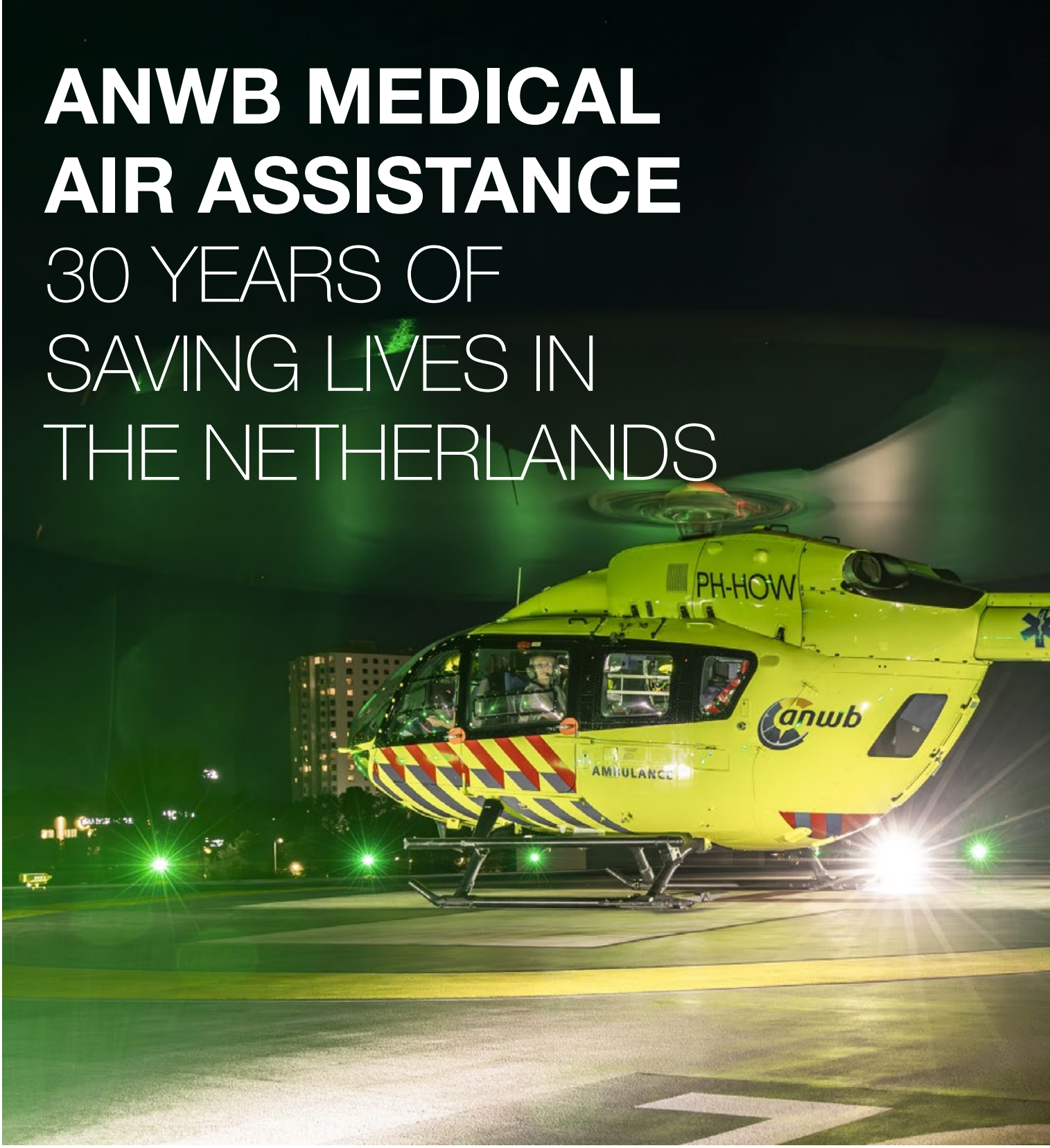
ANWB MEDICAL AIR ASSISTANCE

30 YEARS OF SAVING LIVES IN THE NETHERLANDS



With no fewer than 12,000 calls per year, yellow trauma helicopters are a frequent and familiar sight in the Netherlands' skies. On board is a mobile medical team (MMT) consisting of a pilot, doctor, and paramedic that is racing to any medical emergency where seconds count.

By: Ramon Wenink & Martin Scharenborg / Global Aviation Review Press ®

Although some regions have become accustomed to helicopters responding to serious accidents, this form of emergency medical service is still relatively new in the Netherlands. In Germany, doctors were already sounding the alarm in the late 1960s due to a rapidly increasing number of traffic fatalities. To improve survival chances, it was essential not only to reach accident scenes more quickly, but also to transport patients to trauma centers faster. The ADAC (Allgemeiner Deutscher Automobil-Club) took the initiative to conduct trials using rented MBB Bö 105 helicopters. The results were so promising that in November 1970, a permanent civilian rescue helicopter was stationed in Munich. In the years that followed, the number of locations grew significantly. Partly thanks to the success of the German network of military and civilian rescue helicopters, interest in establishing a similar service in the Netherlands grew in the mid-1980s — especially as traffic in the Randstad region became increasingly congested.

THE FIRST STEPS

With support from the ADAC, the ANWB (Royal Dutch Touring Club) launched a pilot project on May 1, 1995 in cooperation with the VU University Medical Center in Amsterdam (now Amsterdam UMC). The medical crew was provided by the hospital, a MBB Bö 105 helicopter and pilots were contracted from KLM-ERA Helicopters, and funding and logistics were arranged by the ANWB. This marked the birth of the first civilian trauma helicopter in the Netherlands, aptly named *Lifeliner 1*. To manage this new operation, a dedicated subsidiary was established: ANWB Medical Air Assistance, or ANWB MAA. In 1997, a second MBB Bö 105 was stationed at Erasmus Medical Center in Rotterdam. This aircraft was named *Lifeliner 2*.

EXPANDING THE NETWORK

With just two helicopters, both located in the western part of the country, it was difficult to provide adequate national coverage. This led to efforts to expand the HEMS (helicopter emergency medical services) operation. In 1998, the Dutch Ministry of Health, Welfare and Sport (VWS) committed to supporting the continuation of the service. Meanwhile, ANWB MAA established agreements with the 11 designated trauma centers across the Netherlands, enabling the helicopters to land there. In 2004, the first five brand-new Eurocopter EC135 helicopters were delivered, replacing the older MBB Bö 105s. At the same time, two new permanent bases were opened: at Volkel Air Base (*Lifeliner 3*), where the medical crew was provided by Radboud University Medical Center in Nijmegen, and at Groningen Airport Eelde (*Lifeliner 4*), staffed by medical personnel from the University Medical Center Groningen (UMCG). With the arrival of the EC135s, night-flight testing also began. Following an extensive training and evaluation phase, the Ministry of Health approved 24-hour trauma helicopter operations by ANWB MAA in 2011.

BUSY OPERATING AREA

With an average of 12 missions per day, *Lifeliner 1* is one of the busiest trauma helicopters in the Netherlands. The primary service area of *Lifeliner 1* includes the densely populated northwest of the Netherlands. However, the helicopter is regularly deployed outside its designated region when other teams are already engaged and a mobile medical team is urgently needed elsewhere.

"Currently, *Lifeliner 1* is staffed by eight pilots and 11 HEMS crew members (HCMs)," says Frans Fuhrmann, chief pilot of *Lifeliner 1* and deputy flight operations manager. "These HCMs are emergency or ambulance nurses who have received additional flight operations training at ANWB MAA and can assist the pilot during missions. In addition, we have 14 doctors and 13 helicopter landing officers, who also drive the MMT ground vehicle. This vehicle is used when flying is not possible due to weather conditions, when the helicopter is unavailable due to maintenance, or when the incident can be reached faster by road."

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A CHALLENGING JOB

Fuhrmann has been chief pilot of *Lifeliner 1* since 2008. He has accumulated around 1,800 flight hours on a variety of aircraft including the Sud Aviation Alouette III, Westland UH/SH-14D Lynx, Dornier Do-228, and Airbus EC135/H135. "Working on the trauma helicopter was my preference when I left the navy," Fuhrmann says. "The work on the trauma helicopter is challenging. We sometimes fly in poor weather and land in places you normally wouldn't reach by helicopter, so finding a suitable landing spot — often in densely built-up cities — is crucial. What really appeals to me is working in a multidisciplinary team and being part of the emergency response. It's varied and sometimes demanding to achieve a good and safe outcome with the team."

WADDEN SEA HELICOPTER

ANWB MAA currently operates six EC135/H135 helicopters as well as two Airbus H145 helicopters. The H145s were acquired in 2016 after the Royal Netherlands Air Force retired its three Bell 412SP helicopters in January 2015. These helicopters had performed search and rescue (SAR) missions from Leeuwarden Air Base with 303 Squadron. This special SAR squadron, active since 1977 from Leeuwarden and previously flying the Sud Aviation Alouette III, primarily rescued downed military pilots around the Wadden Islands' shooting ranges. Over time, patient transport from the Wadden Islands to the mainland became an increasingly important secondary task. When the Ministry of Defense announced in 2014 it would disband the squadron, patient transport services to and from the Wadden Islands were at risk. Defense guaranteed the transitional period until a civilian party could be contracted through a public tender to take over the transport for the Regional Ambulance Service Friesland (RAV Fryslân). The ANWB MAA eventually won the tender, partly because its offer of the Airbus H145 was both economically and practically more suitable for the task. The Airbus H145 is significantly larger than the EC135/H135, providing space next to the pilot for one patient, one nurse, and two extra people such as a doctor, family member, or instructor. The ANWB H145s also feature a Helionix avionics suite, a dual-duplex four-axis autopilot, and a Bucher medical interior.

With the call sign Medic 01, the ANWB MAA's H145s have been based at Leeuwarden Air Base since November 2016 and staffed by seven pilots, 10 HCMs, and 13 nurses from RAV Fryslân. "Flying the ambulance helicopter in the Wadden region involves many challenges," explains Michael Zwollo, former Royal Netherlands Navy pilot and now chief pilot of Medic 01 and coordinator of flight operations at Leeuwarden Air Base. "Obviously, the weather — storms, snow, fog, high summer heat — but also a wide variety of patients, from broken bones to resuscitations. Finding suitable landing spots is also challenging; beaches, dunes, campsites, and bike paths are almost daily landing zones. This is only possible if the weather at the landing site is good. We are the only ANWB MAA base authorized to fly on instruments through clouds. The Wadden region has unique weather phenomena that can differ greatly from the mainland. It can be beautiful weather on the Wadden, but bad on the mainland and vice versa. When visibility over water is poor, the gray sky and gray sea blend together, making it hard to distinguish up from down, which can cause disorientation. We then rely heavily on our instruments to confirm we are flying correctly. We are well trained for this. When it's windy in the Netherlands, it is usually even windier in the Wadden, making takeoffs and landings more challenging."

LELYSTAD

Since 2012, the headquarters of ANWB Medical Air Assistance has been located at Lelystad Airport. The organization employs a total of 57 people, including 37 pilots (of whom two partly hold management positions at the office), two technicians, 13 office staff, and five employees working at ANWB Medical Drones. The location is special due to its central position, which is crucial when reserve capacity needs to be deployed in case of technical problems at any of the other bases.

Additionally, the airport offers the opportunity to conduct training and maintenance flights with reserve helicopters in a relatively sparsely populated area.

“Initial training takes place in Lelystad for both helicopter types,” explains Amanda Tijben, flight operations manager at ANWB MAA. “Once this part is completed, trainees continue their training ‘on the line.’ Regular ground training sessions also take place here (first aid, technical refreshers, crew resource management, etc.). Flight recurrent training is conducted on simulators.

After completing the initial training and the operational proficiency check (covering operational flight procedures), the pilot moves to their own base for further training to become a HEMS pilot.

“The training between a trauma pilot and an ambulance pilot is almost identical, with the key difference that the latter also operates IFR flights and must be trained accordingly on type and operation.”

THE FUTURE

Since August 2023, Bastiaan Kroes has been the director of ANWB Medical Air Assistance (ANWB MAA). “The unique combination of aviation, helicopters, emergency services, and social commitment was decisive for me to make the switch to ANWB MAA,” says Kroes. “2024 was a busy year, with the helicopters and mobile medical teams being dispatched 12,000 times. Our ambulance helicopter received 818 calls in 2024, and together our ‘Lifeliners’ and ‘Medic’ helicopters logged 3,800 flight hours during these missions. ANWB MAA has recently also launched ANWB Medical Drones. With this, we are working on a medical network for transporting blood samples, medicines, and lab results by drone. Additionally, we test transport conditions by monitoring temperature, vibrations, etc., and assess their effects on the products being transported. Our biggest challenge is getting the regulations in place. This requires close collaboration with, among others, the Ministry of Infrastructure and Water Management, LVNL (air traffic control for the Netherlands), and the drone industry.” Tijben adds, “We are of course proud to have carried out these important tasks for the trauma centers and RAV Fryslân for 30 years now, thereby making a valuable contribution to the quality of patient care in the Netherlands.”

Acknowledgments

The authors would like to thank ANWB MAA for its cooperation and hospitality in the preparation of this article.

LOOKING AHEAD

CHALLENGES AND OPPORTUNITIES IN AIR MEDICAL SERVICES

By Lyn Burks

Photo: Bell Flight

Air medical providers across the U.S. are united in their dedication to safe and reliable service for the communities they serve. Unfortunately, even highly dependable organizations are making compromises to their in-service rates, fleet composition, response times, and coverage areas as they face workforce instability, system fragmentation, and financial pressures. These are some of the operational challenges confronting the modern air medical system that require attention. Fortunately, there are policy and practice opportunities that can help improve air medical operations.

Rotor Pro took the opportunity to seek the insights of three individuals in the industry with differing backgrounds and perspectives in order to learn more about the challenges and opportunities facing the air medical services industry. We jumped at the chance to learn more from:

- Brett Reeder, president of the National EMS Pilots Association (NEMSPA)
- Kyle Danielson, founder and principal consultant for Flightline Strategy
- Steve Soliz, HEMS segment manager for Bell Flight

TOP CHALLENGES
FOR AIR MEDICAL SERVICES

Critical Pilot Shortage

Despite ample opportunities for qualified pilots, the helicopter air ambulance (HAA) industry faces a severe shortage. This isn't just about a lack of pilots; it's a "pay and quality of life shortage." HAA pilot salaries, especially base pay, often can't compete with major airlines, corporate jets or other high-skill jobs. This pushes talented pilots, including those from the military, to more lucrative careers.

While overtime helps HAA pilots earn more, this overtime dependency is a hidden cost that can lead to pilot burnout, reduced quality of life, and a less appealing profession in the long term, despite higher reported gross earnings. If pilots must consistently work beyond standard hours to achieve a livable or competitive wage, it implies that the base compensation is inadequate. This practice boosts gross income but inherently leads to longer work hours, increased fatigue, and diminished work-life balance — factors explicitly cited as reasons for pilots leaving the industry.

Solving the problem requires the retention of experienced pilots with a focus on both financial incentives and quality of life. This means revising compensation structures, including the implementation of competitive base salaries and holistic compensation packages that include attractive benefits and variable pay. This will help reduce unsustainable reliance on overtime, which often contributes to burnout.

Investment in comprehensive initiatives is crucial to expand the pipeline of qualified pilots. This involves establishing robust industry initiatives, scholarships, and partnerships with flight schools to alleviate the prohibitive costs of helicopter pilot training and accelerate career progression. Mentorship programs also can play a vital role. For example, programs like VAI's successful Rotor Pathway in Utah and Louisiana demonstrate effective models for this approach. Creating direct and incentivized pathways for military helicopter pilots into civilian HAA roles is paramount.

– Brett Reeder, NEMSPA

System Fragmentation

Air and ground EMS providers routinely fill the gap for each other, yet they often exist in parallel administrative structures with their own priorities, goals, and resources. As ground EMS providers contract due to staffing shortages and financial pressures, air medical services often are called upon to fill the gap, which can lead to sudden surges in demand. I suspect that the growing strain on rural ground EMS will continue to spill over into air medical services.

Additionally, the misalignment of dispatch practices from county to county can lead to duplicated responses while others wait. This is not only inefficient, but it also can increase the risk to the responding crew. This occurs with both scene responses and requests to critical access and rural hospitals.

As international research has demonstrated, system-level coordination of triage protocols, dispatch practices, and base location would likely improve overall air medical coverage and response times by reducing unnecessary overlap of services.

These are just two of the system-level issues that ultimately affect the success of air medical services, as financial pressures already threaten their sustainability.

– Kyle Danielson, Flightline Strategy

Uncompensated Care

HEMS responds when requested by hospitals, law enforcement and ground EMS services, whether the patient has the ability to pay or not. Depending on where the HEMS agency is located, that percentage of population can require a significant amount of care that will have to be written off as bad debt or charity, depending on the agency. According to the U.S. Congressional Budget Office, newly approved legislation called the Big Beautiful Bill will create an additional 17 million uninsured citizens over the next 10 years. Some states have the ability to pick up a portion of uncompensated care, but not 100% of the costs. This will add to the burden of the industry.
– Steve Soliz, Bell Flight

Insufficient Weather Reporting

One of the hurdles for HAA operations is the large gaps in weather reporting, particularly in remote areas. HAA often operates into unimproved landing zones (LZs) where official weather stations are nonexistent. This lack of precise, real-time weather data can lead to no-go decisions that delay critical patient transport, or worse, increase risk if crews push limits.

Solution: NEMSPA is actively pursuing a crucial solution in expanding the FAA Weather Camera network. This includes not only includes the FAA's own deployments, but also integrates third-party cameras from hospitals, state DOTs, and even private companies. NEMSPA advocates for policy changes to allow these camera views to be used for "go" decisions, not just no-go ones. We support robust training for pilots and dispatchers to interpret visual weather conditions effectively. This would provide invaluable situational awareness, enhancing safety and enabling more timely flights.
– Brett Reeder, NEMSPA

Financial Sustainability

When reimbursement covers less than half of operating costs and payment delays extend beyond 100 days, programs must make trade-offs that affect service quality and their ability to meet demand. This involves everything from base placement

Photo: Bell Flight

to aircraft choice to staffing configuration. Making changes to the chronically underfunded system without adding pressure on patients, through mechanisms like the No Surprises Act, is a positive step forward. We can and should do more to ensure the sustainability of air medical services. Despite these funding gaps, forward-thinking operators are finding ways to specialize their services for the patients who benefit most from air medical care.
– Kyle Danielson, Flightline Strategy

No Surprises Act

The No Surprises Act (NSA) was enacted in 2022 to prevent insured patients from being balance-billed for out-of-network air ambulance services beyond the in-network cost, and to prohibit high charges and public payer rates (like Medicare) when determining payment through an independent dispute resolution (IDR) process.

This is a shift towards a market-based approach to promote negotiations between insurers and providers that create fair in-network agreements. The goal is for the insurance company and the HEMS agency to enter an IDR process to settle payment disputes between out-of-network providers and health plans when they can't agree on a payment amount for certain services. This process involves a government-certified third-party entity that acts as an arbiter and chooses between the payment offers submitted by the provider and the health plan.

Although HEMS agencies are winning approximately 80% of these denial appeals, payment is not occurring. It is being reported that denials by insurance companies have increased by over 20% since the NSA has gone into effect.
– Steve Soliz, Bell Flight

The Rise of Drones and Airspace Integration

The increase in drones poses a growing threat of near misses or strikes with HAA aircraft. A lack of standardized reporting makes quantifying this risk and developing mitigation strategies difficult. NEMSPA is actively seeking to address this by pushing for improved drone incident reporting and data collaboration. As highlighted by NEMSPA's recent inquiries to organizations like ASRS, the goal is to create a centralized, easily searchable database for drone near misses and strikes. This accurate data is essential for informing regulatory bodies, developing effective airspace management strategies, and creating public awareness campaigns regarding safe drone operation around HAA flight paths and LZs.
– Brett Reeder, NEMSPA

Effect of Tariffs

The new U.S. tariffs on replacement parts are unprecedented and have been reported as high as $300,000 for an engine rebuilt in Europe. These unplanned expenses prolong out-of-service times (AOG) and impact patient response, as some multi-aircraft companies have to move around assets to cover areas that are short an aircraft. One of our legislative discussions is the idea of advocating the re-implementation of the 1979 Agreement on Trade in Civil Aircraft, which made aviation parts duty-free.
– Steve Soliz, Bell Flight

TOP OPPORTUNITIES FOR AIR MEDICAL SERVICES

Specialized Clinical Delivery

As medicine advances, so does the quality of care we provide in the field. From administering blood products to highly specialized treatments such as neonatal care and mechanical circulatory support (e.g. ECMO, IABP and Impella), air medical services enhance patient outcomes through rapid response with highly trained multidisciplinary teams. Advanced geospatial analysis, as part of operational strategy and planning, can help align these limited resources with the patients and communities most likely to benefit from them.

– Kyle Danielson, Flightline Strategy

Enduring and Growing Demand for Life-Saving Services

Despite challenges, the fundamental need for rapid air medical transport remains strong and is growing. HAA is an irreplaceable component of the healthcare system, especially in regions with vast distances or limited ground infrastructure. As populations age and the prevalence of chronic diseases increase, the demand for swift, specialized medical transport will only continue to rise.

– Brett Reeder, NEMSPA

Multi-Mission Aircraft

An underutilized opportunity lies in the integration of aviation assets in complementary services like air medical, search and rescue, and firefighting. When viewed as a shared asset, larger and more extended-range aircraft such as those in the light-intermediate and medium-twin categories could alleviate the financial burden on any single agency while expanding the capabilities of specialized medical teams. A multi-mission specialty aircraft presents an ideal chance for groups with similar government funding sources and mission profiles to align with shared assets. The potential benefits increase when considering the possibility of reducing fixed-wing costs by adding long-range rotor-wing capability, rather than expanding a program's fixed-wing fleet. While our industry optimizes approaches with traditional aircraft, the emerging eVTOL technology is likely to reshape our capabilities in specific settings.

– Kyle Danielson, Flightline Strategy

Advanced Air Mobility

I witnessed the first major U.S. air medical operator's announcement for eVTOL aircraft, signaling a shift in the industry towards advanced air mobility (AAM) platforms. While the efficacy has yet to be proven in the air medical industry, and regulations struggle to keep pace, it's clear that AAM is no longer a concept; it's here. With promises of significantly lower operating and maintenance costs, eVTOLs are an appealing option for short-range inter-facility transports to complement traditional air medical operations.

There's an opportunity for hospitals to modernize the infrastructure and layout of their heliports, allowing them to benefit from the increased access eVTOLs may provide. Significant research and development also

is underway for uncrewed aircraft, which may offer an opportunity to simultaneously deploy specialty resources from multiple locations to meet the patient's unique needs. The question at this juncture is not if eVTOL transport will replace traditional air medical operations, but rather how they can complement existing services to benefit our patients and the sustainability of the industry.

– Kyle Danielson, Flightline Strategy

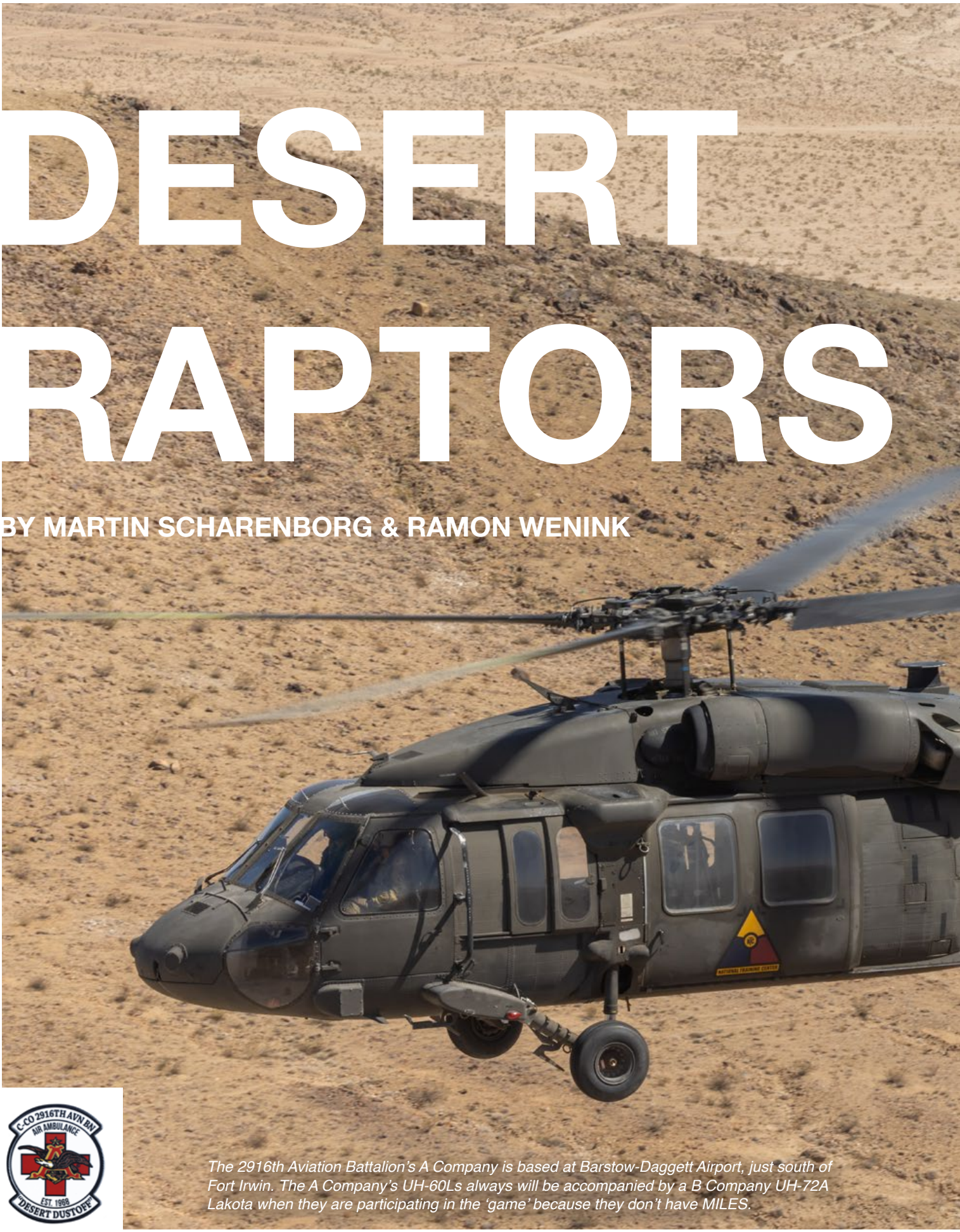
Leadership in Airspace Evolution

As the airspace becomes more complex with the integration of UAS and potentially autonomous systems, HAA has a unique opportunity to shape the future of aviation safety and operations. The experience of HAA pilots in dynamic, low-altitude environments is invaluable. HAA organizations, through bodies like NEMSPA, can collaborate on policy development and actively participate in regulatory discussions to ensure new airspace rules prioritize HAA safety and operational needs.

– Brett Reeder, NEMSPA

DESERT RAPTORS

BY MARTIN SCHARENBORG & RAMON WENINK



The 2916th Aviation Battalion's A Company is based at Barstow-Daggett Airport, just south of Fort Irwin. The A Company's UH-60Ls always will be accompanied by a B Company UH-72A Lakota when they are participating in the 'game' because they don't have MILES.

The 2916th Aviation Battalion “Raptors” at the United States Army National Training Center play a vital role in preparing combat units for tomorrow’s fight.

Surrounded by the hills of the Mojave Desert in San Bernardino County, California, the National Training Center (NTC) at Fort Irwin is one of the largest training areas in the country. Measuring roughly 1,000 square miles, it covers the approximate size of Rhode Island. The harsh environment with high temperatures, occasional strong winds, and rugged terrain makes this area the ideal setting for training armored brigade combat teams and units from other services and allies. The Fort Irwin NTC was established in 1979.

Approximately 10 rotational training units (RTUs) with 50,000-60,000 soldiers and their equipment come to Fort Irwin annually to train in the most realistic combat scenarios possible.

The UH-72A Lakota was introduced to B Company in 2011, and five of these aircraft are currently operating out of Barstow-Daggett Airport. All the aircraft are painted in the "bruised banana" color scheme and fitted with laser sensors for the improved MILES system on the skids and fuselage.

OPPOSING FORCES

Serving as the opposing force (OpFor) for the rotational training units is the 11th Armored Cavalry Regiment "Blackhorse." The unit joined the Fort Irwin NTC in 1994 and specializes in enemy warfare, using tactics and equipment that the enemy would use in modern warfare. Humvees and M113 armored personnel carriers are heavily modified to replicate Russian T-72, T-90, BMP-2 and BMP-3 tanks to serve as OpFor surrogate vehicles (OSVs). Also, several villages (mock cities) have been built in the vast desert to replicate enemy strongholds for urban warfare training. The accomplishments and progress of the RTUs are closely monitored by the operations group's observer coach/trainer (OC/T) teams.

SOKOL

To assist Blackhorse, the 2916th Aviation Battalion Raptors play an important role. The battalion reports to the 916th Support Brigade, and consists of three flying companies and a subordinate aviation regiment. The battalion's Bravo Company is nicknamed "Sokol," which means "Falcon" in Russian, and provides enemy air threat for the RTUs. From 1980 until December 2011, the Bell UH-1H and JUH-1H Hueys served at the NTC with the 2916th Aviation Battalion. The Hueys were painted in a smart yellow, green and brown color scheme with a bright red star to replicate enemy Mil Mi-24 Hind helicopters. The JUH-1H was additionally fitted with an extended nose cone, replicating an extra cockpit to make it look even more like an Mi-24. The aircraft were fitted with the Multiple Integrated Laser Engagement System (MILES) on hard points on both sides of the fuselage that simulated rockets or guns fired from the helicopter. RTU units both on the ground and in the air were equipped with laser receivers that alerted the OC/Ts if a vehicle or aircraft was hit and no longer allowed to participate in the day's exercise.

In 2011, the UH-72A Lakota was added to the B Company that is currently operating five aircraft out of nearby Barstow-Daggett Airport. The aircraft are all painted in a "bruised banana" color scheme and fitted with laser sensors for the improved MILES system on the skids and fuselage.

"We're also using the TESS system (Tactical Engagement Simulator System), which is basically a part of MILES," explained Chief Warrant Officer 3 (CW3) Luis Cardona, lead instructor pilot at B Company Sokol until 2023. "It's a camera that has an IR component to it that pairs with the MSMODIM (Modular SMart Onboard Data Interface Module) and the MILES system that allows us to engage and be engaged by the ground forces. We have some screens on board and with the camera we can zoom in and out, acquire a target and fire a laser. The forces on the ground, and also our aircraft, have a light on board. When you're hit, this light will start flashing. Our operations group are the referees for this fight. They can see everyone moving across the battlefield and they are able to identify which kills occurred. So if Sokol takes out a tank or a vehicle, they might not know what hit them. As soon the light starts flashing, they will stop and then their OC (observer coach), who is with them, receives a message from the referee: 'You are just killed by an attack aviation asset!' The system also allows the players to see later on what killed them via the assisting Observer Coach/Trainer during the debriefing – for instance, a machine gun, tank or a missile."

CHALLENGING CONDITIONS

Sokol uses Russian doctrine that is available on open source and other mediums in order to simulate tactics, but it will also use U.S.-based doctrine because some U.S. doctrine and Russian doctrine will cross-pollinate and be very similar, Cardona said. “Ultimately though, the specific doctrine will change based on the scenario that they are facing,” he added. “If the RTU is doing very well, they will ramp it up and the RTU will be facing more complicated maneuvers in a much more aggressive attack profile. For me, it is the most challenging area that I have flown in. The heat is one thing; it reduces aircraft performance. But it can also be very dark out there. It can be extremely windy, and the dust is another thing. We have to be very focused on what we do. It also depends where you are. The terrain and the environment is not the same in every single portion of the box (training area). In some areas, the sand is much thicker and so when the dust gets kicked up, it’s almost like rocks hitting the aircraft. Then you go five miles east or west and you might encounter something I call ‘moondust.’ You can be 40 feet up in the air and experience complete brownout. It goes dark and it is daytime!”

DESERT HAWKS

The Alpha Company Desert Hawks of the 2916th Aviation Battalion are praised for the broadest mission set. From 2011 until 2015, the unit operated a mix of UH-72As and UH-60s. Today, the unit operates only seven UH-60L Blackhawk helicopters out of Barstow-Daggett Airport. The main task of the unit is the VIP transport mission. On a regular basis, the NTC at Fort Irwin is visited by civic leaders, commanders, generals, celebrities, congressional delegates and foreign dignitaries. Over the years, tasks were expanded to include aerial reconnaissance, resupply missions, casevac, and air assault missions for the 11th ACR.

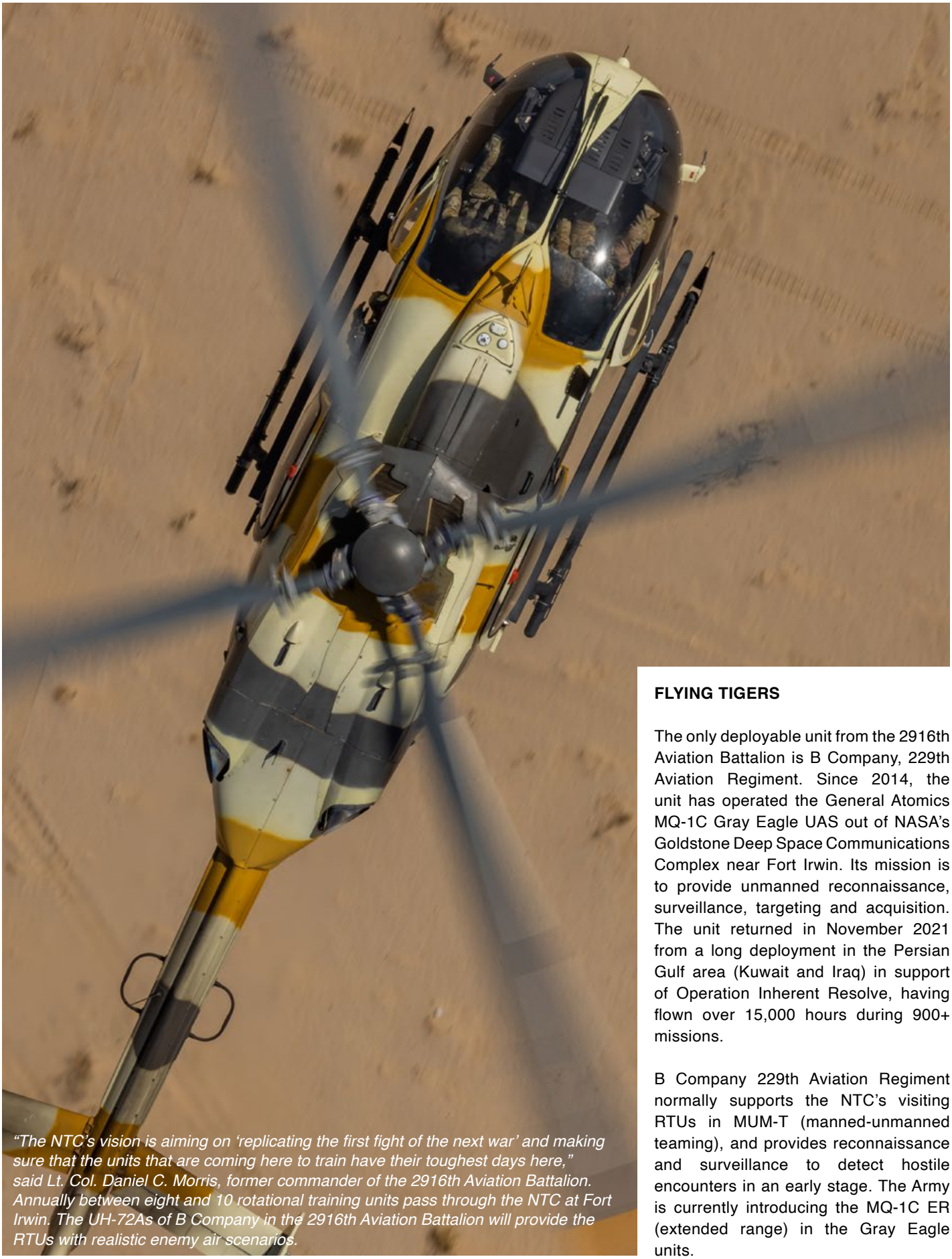
“Because the A Company’s UH-60Ls do not have MILES, when they are participating in the game, they always will be accompanied by a B Company UH-72A. Between rotations, the Tarantula OCT (part of the NTC OPS Group) is on airborne status and has to jump every so often. A Company will conduct all their airborne operations and do para-drops. They are the Swiss Army knife of operations here,” said Captain Robert B. Forney, former commander of A Company and former S3 operations officer at the 2916th Aviation Battalion.

Charlie Company of the 2916th Aviation Battalion is one of the busiest medevac units in the United States. It provides 24/7 coverage 365 days a year for both the NTC and San Bernardino County.

A C Company "Desert Dustoff" crew prepares a patient for transport to a higher care facility in San Bernardino County, California.

DESERT DUSTOFF

Where there is intensive training, accidents are bound to happen. Charlie Company of the 2916th Aviation Battalion is the unit that provides Aeromedical Evacuation (medevac). The unit currently operates six UH-60L Blackhawks that in 2015 replaced the UH-60A+ nicknamed the Frankenhawk. "Actually, this was the perfect helicopter to operate in this environment," explained Maj. Michael Chase, former commander of C Company Staff. "It had the lighter airframe of the A model, but was fitted with the more powerful engine of the L model. It gave us more power to operate in hot-and-high conditions. We also operated until 2015 the UH-72A Lakota, but this aircraft was not meeting our expectations as it was limited in performance. Therefore, it could happen that sometimes we had to leave a crew member or heavy equipment behind. With the UH-60L Blackhawk, we do not have that problem." Sgt. Derek Randall, former C Company flight medic with over 400 flying hours and 60 real missions added, "We're the busiest Dustoff unit; we're the first responder for the RTUs, and the second responder for Southern California. Additionally, we do a lot for the community. I have almost transferred anyone, from a little kid to someone's grandma, and on top of that, we provide local support for San Bernardino County. One of our most memorable missions occurred on 4 October 2021, when an F/A-18F, operating out of China Lake, suffered an engine failure and the pilot had to bail out. Our crews responded as the nearest medevac unit. The medic jumped out of the helicopter at the crash site and found the pilot who had some head trauma, and he got checked out at the hospital. For me personally, the most memorable mission was when a child fell down some stairs and had a shifting intercranial bleed. We took him to the hospital, and the next week I saw him back when his parents brought him to the airfield and he was all happy. That's what makes it worthwhile for me: all the positive turnarounds."

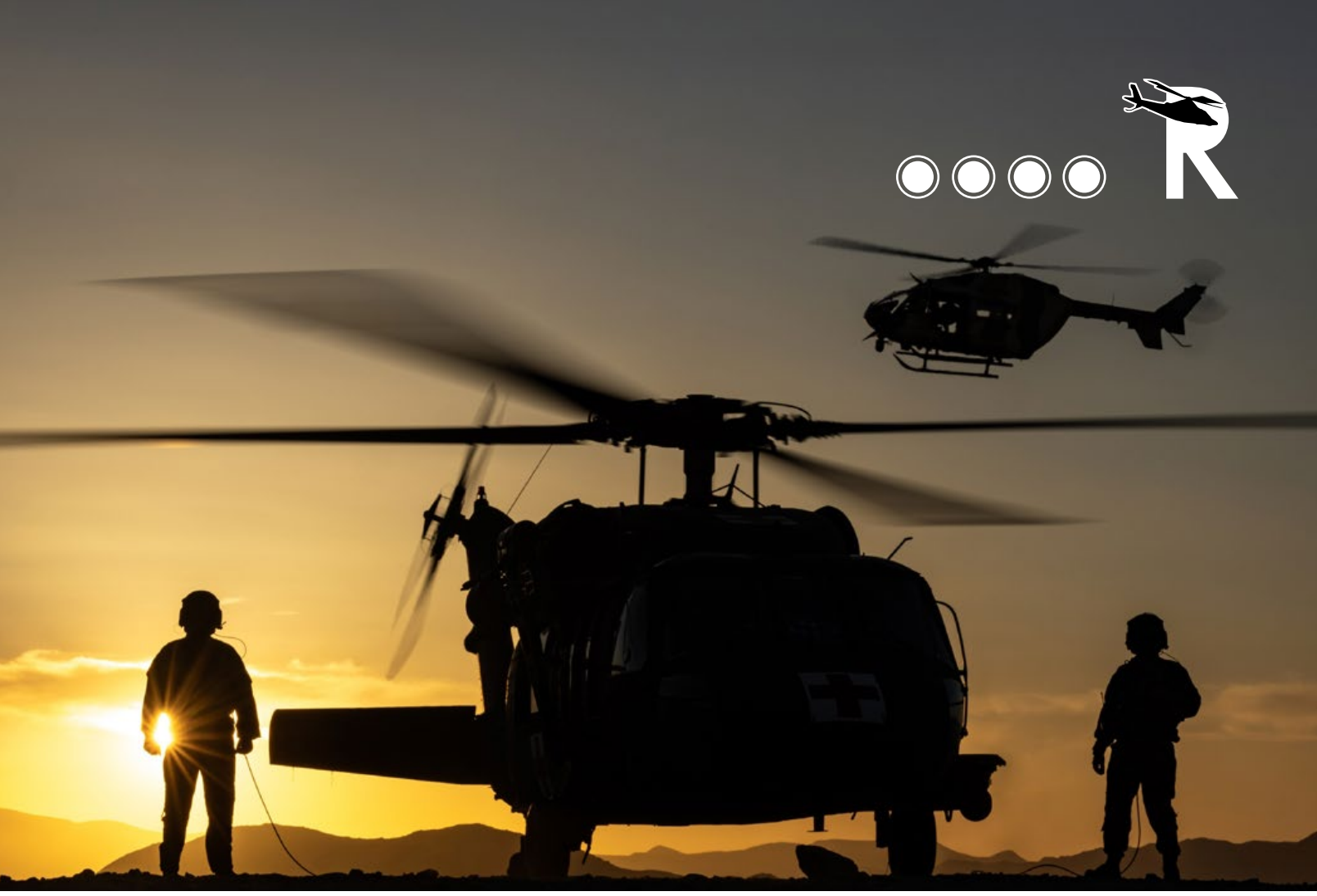


"The NTC's vision is aiming on 'replicating the first fight of the next war' and making sure that the units that are coming here to train have their toughest days here," said Lt. Col. Daniel C. Morris, former commander of the 2916th Aviation Battalion. Annually between eight and 10 rotational training units pass through the NTC at Fort Irwin. The UH-72As of B Company in the 2916th Aviation Battalion will provide the RTUs with realistic enemy air scenarios.

FLYING TIGERS

The only deployable unit from the 2916th Aviation Battalion is B Company, 229th Aviation Regiment. Since 2014, the unit has operated the General Atomics MQ-1C Gray Eagle UAS out of NASA's Goldstone Deep Space Communications Complex near Fort Irwin. Its mission is to provide unmanned reconnaissance, surveillance, targeting and acquisition. The unit returned in November 2021 from a long deployment in the Persian Gulf area (Kuwait and Iraq) in support of Operation Inherent Resolve, having flown over 15,000 hours during 900+ missions.

B Company 229th Aviation Regiment normally supports the NTC's visiting RTUs in MUM-T (manned-unmanned teaming), and provides reconnaissance and surveillance to detect hostile encounters in an early stage. The Army is currently introducing the MQ-1C ER (extended range) in the Gray Eagle units.



LESSONS LEARNED

Lt. Col. Daniel C. Morris served with the 3rd Combat Aviation Brigade, with the 82nd Airborne Division, and at the National Airborne Operations Center (NAOC) at Offutt AFB before becoming commander of the 2916th Aviation Battalion in 2020-2022.

"With the eye on the events currently going on between Russia and Ukraine and the tactics and doctrines used, the NTC's vision is aiming on replicating the first fight of the next war and making sure that the units that are coming here to train have their toughest days here," Morris related. "Their toughest fight that they are going to have is going to be here at the NTC. There is so much to focus on than just aviation. It is easy not to focus on the tactics when you are just trying to keep the aircraft in the air and keep everyone safe and flying, but when you leave here, you are sort of deeply involved in doctrine and tactics. That's my hope and that is kind of my vision. On its face, Fort Irwin doesn't exactly look like an oasis. But in terms of aviator capability that you build here, it is impactful and we have already had people ask to come here and say, 'I am going to come here and fly in a tougher environment twice as much as peers in other units and do a broader selection of missions.' That is how we draw talent here. Our people leave here as the utility knife aviators of the Army, and my hope is that they go out to their aviation brigades and share their experience with the units they fly with now and with those that they will be flying with in the future."

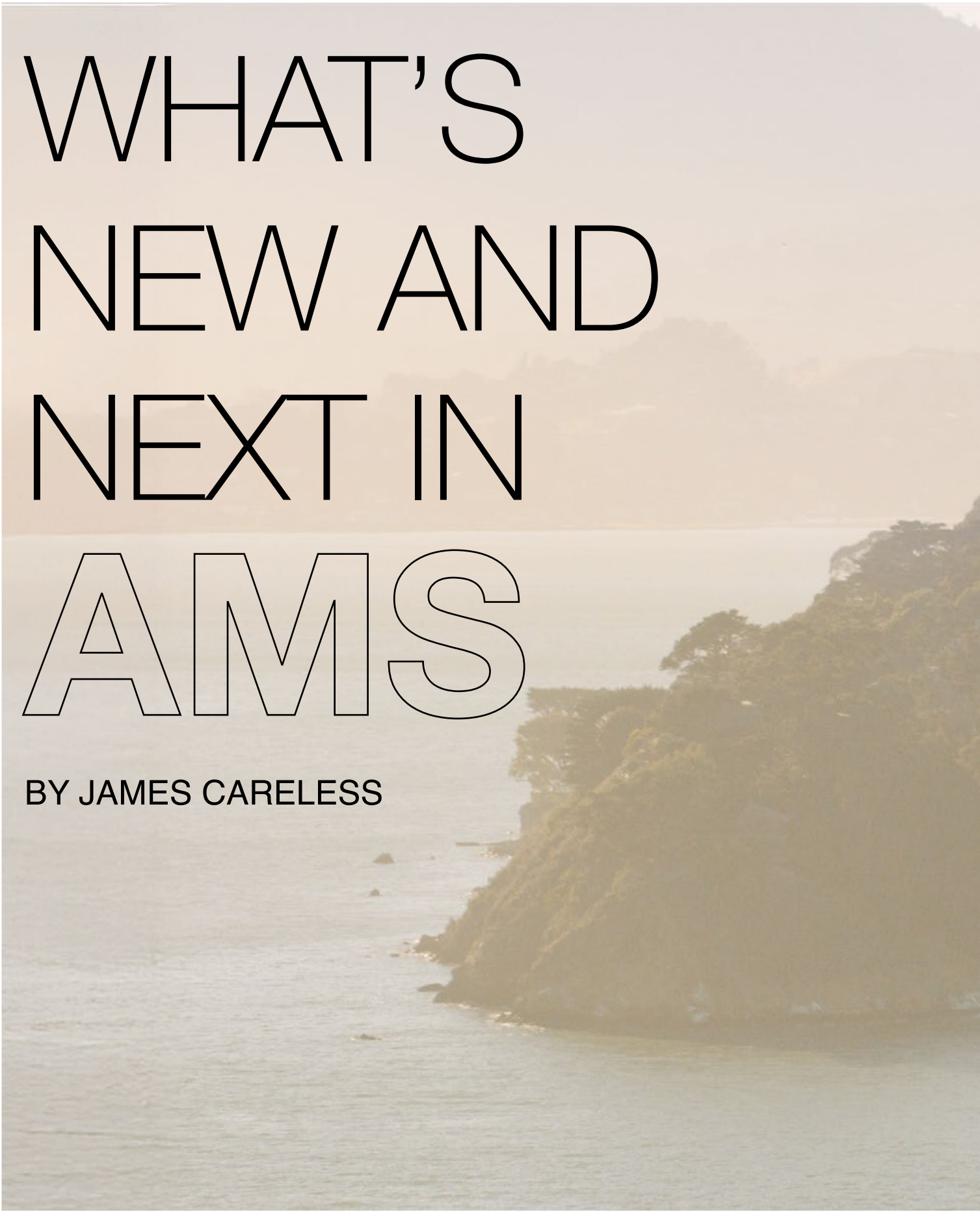
2916TH AVIATION BATTALION 'RAPTORS' / NTC FORT IRWIN

Company	Aircraft	Number	Nickname	Airfield based
A Co. 2916th Avn. Bn.	UH-60L	7	Desert Hawks	Barstow-Daggett
B Co. 2916th Avn. Bn.	UH-72A	5	Sokol	Barstow-Daggett
C Co. 2916th Avn. Bn.	UH-60L	6	Desert Dustoff	NTC Fort Irwin
B Co. 229th Avn. Regt.	MQ-1C	12	Flying Tigers	Goldstone

The authors would like to thank the 2916th Aviation Battalion and the NTC at Fort Irwin for their hospitality and their kind cooperation while compiling this article.

WHAT'S NEW AND NEXT IN AMS

BY JAMES CARELESS



The terms “air medical services” (AMS) and “cool” just seem to naturally go together when it comes to rotorcraft advances. Here’s what’s happening on the rotorcraft AMS front now…

Pivotal eVTOL: Proving Itself for AMS

Pivotal's electric vertical takeoff and landing (eVTOL) aircraft (pivotal.aero) is an eight-motor, single-person vehicle that takes off and lands vertically yet flies horizontally like a fixed-wing aircraft. The Helix has already impressed the general aircraft critics by winning the Gold 2025 Edison Award in the "Future of Personal Flight & Drive" category. The Pivotal eVTOL also has impressed the San Bernardino County (Cal.) Fire Protection District by showing off its skill during a public demonstration on June 23, 2025.

"The demonstration highlighted the potential of eVTOL technology to dramatically reduce response times and overcome traditional barriers like traffic congestion, natural terrain, or rural distances," stated an SBCFPD news release after the event. "Our goal was to evaluate if this aircraft could deliver a paramedic safely, with gear and whole blood, to improve patient outcomes in the real world. This aircraft represents a powerful new tool in time-sensitive trauma care."

The local media also were enthusiastic in their response to Pivotal's AMS eVTOL performance. "The Helix eVTOL aircraft from Palo Alto-based aircraft designer Pivotal was the star of Monday's show in San Bernardino," said the Victorville Daily Press. "The battery-powered, single-seat aircraft requires no runway to take off or land and can fly up to 20 miles at a cruise speed of 63 mph, officials said." The aircraft's capabilities were well illustrated by a 93-second video embedded in the story, in which the Pivotal eVTOL rises, weaves, and maneuvers with considerable ability and ease.

For the record, the canopied-cockpit eVTOL is flown using a joystick with fly-by-wire controls and flight-panel instruments with in-flight navigation and aircraft status indication. It has a landing camera, ADS-B transponder and beacon lights, and is classified as an ultralight under FAA Part 103 rules. Its power comes from rechargeable battery packs. The production-intent Helix has a maximum payload weight of 220 pounds and a maximum takeoff weight of 568 pounds.

Worth noting: The United States Air Force received eight BlackFly eVTOLs (the preproduction version of the Helix aircraft) and conducted testing. Possible missions include EMS, special operations, and search and rescue.

As for the future? Pivotal CEO Ken Karklin says his company might someday make a hybrid two-person version of the all-electric Helix, with a diesel engine added to generate power for longer range flights. “As great as batteries have become, diesel fuel has a much higher density of energy storage than lithium does,” he said. “There’s no getting around that today. It’s about an order of magnitude better. That said, if we were building simply a larger aircraft rather than an ultralight, we could be in the range of a two-person aircraft with 50-60 miles of range with only a few hundred more pounds of mass. So we can get there and, if we’re lucky, the FAA just might come out with a certification basis for that technology in the coming year or two.”

Jump Aero's JA1 Pulse: Something Out of "Star Wars"

"Star Wars" Meets AMS: that's the best way to describe Jump Aero's JA1 Pulse rapid response eVTOL (www.jumpaero.com). This one-person, eight-engine biplane looks like something out of science fiction, due to its striking configuration and bold design. The JA1 even launches and lands with the pilot/flight medic standing straight up like Superman.

That's not all; to navigate safely to a waiting patient, the pilot looks through a large belly window that makes it easy to see and descend to landing zones. Meanwhile, a built-in ballistic airframe parachute provides safe emergency landings in the event of a total loss of power. And the JA1 can even be loaded, without disassembly, on a flatbed trailer for easy transport across longer distances.

"The Jump Aero JA1 Pulse rapid response eVTOL has been in development since 2019," said Carl Dietrich, founder and CEO of Jump Aero. "It has a 325-pound payload capability, a 30-nautical-mile operational radius, and a 250-knots dash speed. It is designed specifically for rapid response in rural areas, and can provide advanced life support (ALS) services. Our vehicle is outfitted with top-line equipment including a heart monitor, a mechanical CPR machine, oxygen, and other ALS first-aid tools."

According to Dietrich, the JA1 Pulse will be the fastest eVTOL in the world. "A standing tail-sitter with full envelope protection and the footprint of a large SUV, the Pulse can land on a single-lane dirt road and deploy as soon as the pilot is ready," he said. "That's much less than the three to five minutes to deploy a typical helicopter air ambulance, because the Pulse's electric motors pay no maintenance penalty for going to full power instantly." Add the extra speed the Pulse enjoys compared to a ground vehicle, and it could arrive on scene up to 30 minutes before a ground ambulance can.

The only bad news: the JA1 Pulse is still years from service. "Our goal is to be ready to conduct trial operations in 2028, but that depends heavily on how many challenges we hit during full-scale flight testing in the intervening time," Dietrich said. "This is a fundamentally new type of aircraft, and as such, predicting an exact timeline for deployment is fraught with uncertainty. What we can say is that we have clear demand signals from customers such as DoD and Falck, and we are pushing the development forward as fast as possible to support the safe deployment of this new capability as soon as possible."

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Matternet: Using Drones for Medical Deliveries

Matternet (www.matternet.com) is a pioneer in the use of drones for AMS payload missions. Using its Matternet M2 cargo drones and Matternet Software Platform, this company has been transporting lab samples, pharmaceuticals, and medical supplies for years. The M2 can carry payloads of up to 4.4 pounds over distances of up to 12.4 miles over urban and suburban areas. Designed for efficiency, it allows for fast battery and payload swaps by an operator or robotic station, enabling the drone to land, swap its battery, pick up a package, and take off in under 60 seconds.

To date, M2 drones have completed over 60,000 autonomous flights in major European cities and multiple U.S. states. They are currently being used by UPS Flight Forward in North Carolina for medical deliveries, for home deliveries in the Silicon Valley region of California, as well as for operations in Switzerland.

"We lead in developing commercial drone delivery systems for urban and suburban areas," said Alex Norman, Matternet's head of Global Flight Operations and Services. "Matternet is the first company authorized for commercial Beyond Visual Line of Sight (BVLOS) drone delivery over Swiss cities. It is also the first to launch routine revenue-generating operations in the U.S., and the first to achieve both standard Type Certification and Production Certification for delivery drones from the U.S. FAA. We have a strong track record, including the world's first humanitarian drone delivery missions (2014), the first B2B healthcare operations in Europe (2017) and in the U.S. (2019), and the first drone delivery operations in the Silicon Valley (2024)."

So what's new for Matternet in AMS? In June 2025, the company announced that it would be partnering with U.K. healthcare logistics startup Apian to support the drone delivery network of the National Health Service in London. To date, Apian has delivered over 5,000 patient samples to Guy's and St. Thomas' NHS Foundation Trust hospitals, in partnership with global drone operator Wing.

"We've refined our M2 drone and automated ground stations with features like temperature-controlled payloads and sub-60-second battery swaps, crucial for urgent medical deliveries," Norman said. "We are continuously developing our delivery system further, and are working intensely on the next-generation platform."

Metro Aviation Orders eVTOLs for Medical Transport

U.S. air medical operator Metro Aviation is taking eVTOLs seriously. In November 2024, the company placed a deposit-backed order for up to 20 Alia VTOLs made by Beta Technologies (beta.team). According to a Metro Aviation news release, Metro plans to integrate Beta's Alia VTOL into its existing network of air medical operations, to ultimately carry out both inter-hospital and scene transports. Metro currently operates 170 aircraft for 42 programs across 27 U.S. states. "Beta's Alia VTOL will provide another platform to that portfolio – and with its high reliability, low cost, and vertical capabilities, it will offer increased mobility and access to rural and urban geographies with zero operational emissions," the news release stated.

Metro's decision to use Beta Alia VTOLs came after many years of discussions with various eVTOL developers. "We are all about the relationships we have with our partners," said Todd Stanberry, Metro's VP and co-owner. "Yes, we believe Beta has the superior product in the eVTOL space, and they are taking the right approach to entering the market, but most importantly, they genuinely care about our opinion and everyone checks their ego at the door."

"We originally designed ALIA with organ and tissue transport in mind, so we are excited to complement that mission with Metro and its family of healthcare providers across the country," added Kyle Clark, Beta's founder and CEO. "Electric aviation brings reliability at a lower cost, which makes it a strong value proposition for urgent transport like hospital transfers and emergency response."

Now, the specs: Beta's Alia VTOL is a single-pilot eVTOL with one five-blade fixed-pitch propeller and four two-blade lift propellers. It has a maximum speed of 153 knots and a maximum demonstrated range of 336 nautical miles. The Alia VTOL can carry up to 1,250 pounds of payload or five passengers and a pilot.

According to Beta, their eVTOLs have landed at more than 90 airports and completed deployments with the U.S. Air Force. Beta is also rolling out an electric charging network across the country. There are 35 Beta chargers online along the East, West, and Gulf coasts, plus 50 additional sites in development. Beta is producing its Alia VTOL and electric Alia CTOL (conventional takeoff and landing) aircraft and chargers in its nearly 200,000-square-foot production facility in Vermont.

By Matt Johnson

BEHIND THE SCENES
HOW THE SAUSAGE IS MADE!

Don't tell my AME, but I love sausage (OK, actually I love bacon, but bacon doesn't fit my analogy.) Don't fret, my column isn't going to be about breakfast meats, nor my diet for that matter. Instead, I want to talk about how things are made or derived behind the scenes as it relates to electronic aviation applications (apps).

We don't always know how our tasty sausage was processed behind the scenes, and frankly, I don't care to see how it's made! However, I do care about how various aviation apps derive their calculations, as you should care as an applicant for any practical test. Let me explain. I'll warn you, this month's column is packed full of questions, and if you don't know the answers, I suggest you figure them out before your next practical exam.

Before I get too deep, I want to add a quick disclaimer here. I am not opposed to electronic flight bags (EFBs); I absolutely love utilizing them on a daily basis, both as a Designated Pilot Evaluator and as a single pilot IFR air medical captain. I couldn't imagine in today's aviation age not using EFBs and still being able to maintain the same level of effectiveness and efficiency. The debate regarding EFBs and practical exams was finally settled last May with the introduction of the Airman Certification Standards for us on the helicopter side of the industry. Prior to this, the allowance of whether EFBs and apps could be utilized during the practical exam seemed to be on a case-by-case basis, depending on the evaluator. Now, we have clear guidance. Here's an example: in the Private Pilot ACS, we find the following statement under Task D, Cross-Country Flight Planning: "Note: Preparation, presentation, and explanation of a computer-generated flight plan is an acceptable option." If that isn't convincing enough, continue on to the Risk Management section of this task and note that one of the items reads "Use of an electronic flight bag (EFB), if used." This statement Indicates that your EFB is one of the items that a DPE can ask about if you use an EFB. Remember, we must ask about at least one item! To further drive home the point, take a look at the Skills section of Task D, where it reads: "The applicant exhibits the skill to: Use an electronic flight bag (EFB), if applicable." So, if you plan on using your favorite flight planning app on an iPad (EFB) during your practical exam, then you must know how to use it! (As a reminder, under the Skills area: *All* elements must be evaluated.)

For even more clarification, let's jump to "Appendix 3: Aircraft, Equipment, and Operational Requirements & Limitations" found in the back of the Private Pilot ACS, and you will find the following statement:

"If the applicant has trained using a portable electronic flight bag (EFB) to display charts and data, and wishes to use the EFB during the practical test, the applicant is expected to demonstrate appropriate knowledge, risk management, and skill appropriate to its use."

So, what about how the app is made or how it works? This is where weaknesses are observed in relation to EFBs. Take, for example, the Cross-Country Planning section. That magenta line that you see from Point A to Point B on your popular app: Is that line a True Course or Magnetic Course? What's the difference? Does it matter? Of course it does! What makes these apps so powerful is they do most everything for you behind the scenes. But what if all you have is a paper sectional, and you have to figure out a Magnetic Course from a True Course based on the closest isogonic line? Speaking of sectionals, what if you see a symbol that you don't know the meaning of? You do know where to find the legend in the app, right?

Here's another area where I often encounter an applicant stress point: basic weight-and-balance calculations. I get it; the apps are fast, easy and often incorporated in an all-in-one flight planning package that makes them convenient. However, at any applicant level you need to know the basic arithmetic involved in calculating total weights, moments, and of course a CG, both longitudinal and lateral.

I would be remiss if I didn't close out with one more critical item: performance! While the app processes in milliseconds, you still need to know where to find those in and out of ground-effect hover charts in your Rotorcraft Flight Manual. What three variables do you need to know the hover performance capability? Given a set of hypothetical variables, you do know how to determine that information with a "raw" chart, right?

I think you get the point. Apps are amazing. They make our lives easy and efficient when used correctly. But when your EFB isn't available (because your iPad overheats, dies, etc.), you need to know how to make your own sausage.

Matt Johnson has been an FAA designated pilot examiner for over a decade, conducting exams ranging from Private to ATP and CFI. Additionally, he is a single-pilot IFR air medical captain, Part 135 instructor, and check airman. He can be reached at HelicopterDPE@gmail.com and via Twitter @HelicopterDPE

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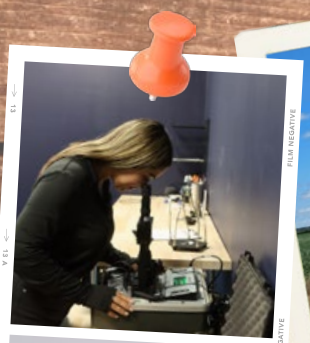

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